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ORIGINAL ARTICLES.

THE RATIO THAT ALIMENTATION SHOULD BEAR TO OXYGENATION IN DISEASE OF THE LUNGS.[1]

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WITHIN the past two decades much has been heard of super-alimentation and forced feeding in pulmonary tuberculosis. It seems to have been assumed in many quarters that the more food a tuberculous patient can be made to take, the better his chances of recovery. Recent studies and observations have, however, led me to consider seriously whether it is not just as true in diseases of the lungs as it admittedly is in other diseases, that excess of food beyond the amount that can be perfectly digested and assimilated is injurious. It seems even probable that in pulmonary affections the gaseous products of indigestion and imperfect oxidation, being partly excreted by the lungs, may be more deleterious than in other cases.

The title of this paper assumes that there exists a definite ratio between the amount of oxygen that a pulmonary patient takes in and the amount of food that he is capable of digesting and assimilating. When the intake of oxygen is large, as occurs in the case of robust persons who are exercising actively in the open air, it is manifest that a maximum amount of food will be demanded and can be safely given. When, on the other hand, a patient has one or even both lungs crippled by disease, leaving him, as often happens, only one-half or one-third his normal breathing-power, and is moreover entirely at rest, being confined to bed in a close, ill-ventilated room, his consumption of oxygen is relatively very small, and the amount of food that he can digest and thoroughly oxidize into a nutritive pabulum for the uses of the economy is very much less.

Between these two extremes are found patients with all possible degrees of capacity and opportunity for absorbing oxygen, and, in consequence, with equally varying degrees of capacity for digesting and assimilating food. If the bedridden patient with only one lung be compelled to ingest even one-half as much food as is imperatively required by the robust outdoor laborer, mischief must result from the surplus that cannot be oxidized into assimilable forms, even if it were possible for it to be digested. Evidently, then, there is such a ratio as has been assumed, and it is exceedingly important that this fact be borne in mind in deciding as to the proper feeding of any case of pulmonary disease.

My attention has of late been particularly directed toward the study of diet and digestion, and, meeting often with such surprisingly good results from carefully-selected and occasionally even severely-restricted diet in numerous forms of disease, it occurred to me last winter to ascertain what a more careful diet, in connection with a larger allowance of oxygen in the form of pure air, could do for my tuberculous patients. About the time when this resolve was made there came into my hands several new cases of pulmonary tuberculosis, including one in which, on account of the extreme irritability of the stomach, full feeding was out of the question. Following will be found a report of it:

CASE I.—The driver of an express-wagon, thirty years old, was first seen by me January 19, 1894. He had always been strong until some time in August, 1893, when he began to cough severely and to have shortness of breath. He first noticed that he had fever about the first of October, and took to his bed early in November on account of fever and debility. He had previously vomited a good deal, often as much as five times a day. He had remained in bed from the time mentioned till he came under my care. While in bed he had been vomiting several times daily, and particularly after almost every meal. His previous medical attendant was said to have urged very liberal feeding—that the patient be made to take as much as he possibly could. I found the man with a temperature ranging from 101° to 102° in the afternoons and with a pulse usually much above 100. When he had last been able to get out, nearly two months before, he had weighed 112 pounds. I should have estimated his weight at somewhat less at the time of my first visit—probably about 105 pounds. He was then expectorating an abundance of the usual nummular sputum of pulmonary tuberculosis in the second stage, and said that he had been doing so for several weeks. He was having copious night-sweats, and his nights were further disturbed by a frequent harassing cough.

Examination disclosed dulness on percussion at the right apex anteriorly, and a similar condition somewhat less marked posteriorly; increased vocal fremitus and subcrepitant râles over the same regions, with some gurgling râles and cavernous breathing

[1] Read before the American Climatological Association, in the Congress of Physicians and Surgeons, Washington, D. C., May 29, 1894.

at a point in front a short distance below the clavicle. At the left apex anteriorly there were the usual signs of a slight infiltration.

The man lay in bed, heavily covered, in a close, warm room of very small dimensions and without any ventilation except such as was afforded by a door opening upon a staircase which led to the living-rooms below. The directions now given were that the windows in the room should be opened to the fullest extent possible and kept so constantly during the day, except in very bad weather, and that they should be open at least six inches at night; the patient meanwhile to be covered just sufficiently to be comfortable. To prevent his "taking cold" and to improve his nervous tone, he was to be sponged at first with cool and later on with cold water, every morning. He was allowed small portions of the blandest liquid diet at intervals of two hours, and tablets containing one-tenth of a drop of creosote were administered, one every two hours, to stop the vomiting and improve digestion.

The vomiting ceased at once, and never recurred except once some ten days later as a result of imprudent eating in violation of express rules. After the stomach had regained its tone and the appetite had become voracious, as it did without other medicine, from the effects of the spongings and freer ventilation, I was obliged to impose stringent restrictions to prevent over-eating.

The man was allowed a plain breakfast of beefsteak or chops and bread and butter, preceded an hour before by a glass of hot water in which was dissolved a little table-salt. In the middle of the day he was directed to take, instead of his accustomed hearty dinner, merely a light lunch of crackers or stale bread and butter, with a baked apple or other fresh fruit, such as grapes or oranges. His supper was much the same as his breakfast, except that either roast or broiled meat or fowl was permitted, with one or two vegetables, but no desserts except fresh fruits. Milk was also permitted.

Pari passu with the gain in gastric tone there was an improvement in the cough, fever, and most of the other symptoms. By the end of two weeks the temperature had ceased to rise above 99.5° in the afternoon; the night-sweats had nearly disappeared and there was no longer any sputum, though still a dry cough. The physical signs showed corresponding improvement. The pulse continued to be weak and rather rapid, and attempts to strengthen it by administering a glycerite of the hypophosphites (Churchill's formula) disturbed his digestion somewhat, and so was abandoned. Minute doses of arsenic iodid were then given with good effect, and at times small doses of creosote were again administered. From the beginning the chest was painted over the affected areas with tincture of iodin every day till the skin became sore; then it was left a few days until new skin formed, when the painting was resumed, and so on.

The man continued to improve in all ways until, at the end of a month from the time the treatment began, he was able to drive out every pleasant day, and was required to sit out or lie on a cot in the front of his house in all weathers except the roughest. Fortunately the winters in Atlantic City are usually very open and mild, the past winter having been exceptionally so, and therefore this patient enjoyed a continual out-door air-bath from morning until night almost every day. By this time his weight had increased to 126 pounds, and there was no longer any elevation of temperature, except that it occasionally reached 99° at night.

On February 27 the patient began to suffer from a relapse, which I attributed to a lapse on his part from the stringent dietetic rules that had been imposed on him. He had gone back to his former habit of eating a heavy mid-day dinner, in addition to two other hearty meals. *Post hoc*, whether *propter hoc* or not, he began to cough and raise sputum, and for several days his temperature again rose above 100° in the late afternoon, while physical examination revealed moist râles below the right apex. A return to his former strict diet was followed by a prompt improvement again, which progressed thereafter uninterruptedly.

By May 2 the patient had recovered his former appearance of robust health, and weighed 132 pounds. He has been at work since early in April. On the date mentioned he was presented at a meeting of the Atlantic County Medical Society, and examined by a number of members. At this time there was still some dulness below the right apex, with a rather harsh respiratory murmur, but no râles whatever. He reported that he had not coughed at all for three or four weeks and that he felt as well as he had ever done.

The foregoing case has seemed sufficiently important to be reported in detail, on account of the very prompt and striking effects that resulted from giving the man more air and less food than he had been receiving before. The report also embodies substantially the method of treatment, both hygienic and medicinal, that has been followed in numerous other cases of pulmonary disease which have been under my care during the past winter and spring. Reports of these are here appended:

CASE II.—A widow, forty years old, a resident of Philadelphia, and sojourning in Atlantic City for her health, was said to have had peritonitis in March, 1893, and since then to have taken morphin—her dose, when she came under my care, having been about one grain daily, hypodermatically, with a proportionate amount of atropin. She had been coughing more or less for upward of a year, and badly for about a month, after an acute attack in Philadelphia of what was considered to be congestion of the lungs threatening pneumonia. She was very thin and emaciated and exceedingly nervous. She was supposed to have had at one time spinal meningitis—probably aggravated spinal irritation. Her temperature at the time of my first visit, December 27, 1893, was 99.6° at 11.00 A.M., and subsequently ranged from 100° to 102° in the late afternoon. She had sweats at night, until they were controlled by a pill of agaricin, gr. $\frac{1}{12}$, with Dover's powder, gr. 1, one or two of which were given at

bedtime. She coughed hard, especially at night, raising a moderate amount of characteristic tuberculous sputum, and occasionally vomited after eating, though with nothing like the frequency in Case I. Examination disclosed the usual signs of a small area of consolidation at the left apex, with a larger area at the right, which had begun to soften. The treatment adopted was similar in the main to that described in Case I. Morphin was gradually withdrawn, codein with nerve-tonics being substituted, and later the codein itself was withdrawn. Similar rules of diet were made as in the previous case, but could not be carried out so strictly, as the patient lived in a boarding-house in which dinner was served in the middle of the day, and the *menu* at supper afforded a scanty variety. Sweets were forbidden and moderation enjoined as to starchy articles. The net result was that the patient took considerably less food than before, and in consequence digested it much more perfectly. She had a fairly good stomach after she began to improve, and creosote was given her in doses of from one to three drops after eating.

On January 5 there was a slight hemoptysis which was promptly controlled. By January 20 my notes show that her temperature no longer rose above 99.5° in the afternoon, and the cough had ceased entirely, not having troubled her at all for the week previous. All narcotics were now discontinued.

On January 27 there was a return of fever, the temperature rising to 101°, but without any return of the cough or expectoration. The patient had been disregarding her rules of diet and indulging in some indigestible food. Within a few days, the patient meanwhile having been kept in a recumbent position, the fever disappeared and the temperature for sometime afterward did not rise above 99°.

In this case the early and apparently entire cessation of the cough was very noteworthy, but the dulness on percussion remained, with some harshness of the respiratory murmur. Some slight moist sounds persisted long after the patient insisted that she no longer coughed or raised anything, but by the end of two months dulness and some increased vocal fremitus were the only noticeable signs over the affected areas. She had gained five pounds in weight and was less nervous.

The patient left Atlantic City for the interior of Pennsylvania on May 1, and during four or five days preceding that date she had complained of a slight cough for the first time in three months, and had occasionally raised a little sputum in the morning. The temperature remained normal, but a few faint râles were found to have reappeared at the right apex. On May 18 a letter was received from her stating that she had developed whooping-cough of a severe type, and with this was again having fever and night-sweats, so that a serious relapse of the tuberculous trouble has evidently taken place as a result probably of the pertussis, which possibly caused the slight return of cough in the last days of April.

CASE III.—A lady, twenty-five years old, a member of a family in which there has been much tuberculosis, had always been accustomed to plain living, but last summer gave up housekeeping and boarded in a house in which the table was rather luxurious. Her digestion became somewhat impaired, and about midsummer she began complaining of a stubborn dry cough. The usual remedies had no effect, and in December last I found slight but well-marked infiltration at both apices. Her diet was restricted, though less than in the preceding two cases, as her habits were active, and the same regimen was enjoined. The cold sponge-baths and constant counter-irritation by means of iodin were particularly insisted on, and the patient, having been somewhat of a bicyclist in former years, was urged to resume that form of exercise, and keep out of doors on her wheel as much of the time as possible. She was directed to take continually creosote in doses of from one to three drops on sugar after each meal. She shortly after began to show improvement, and with but few interruptions progressed favorably until this writing, May 18. She now weighs six pounds more than at the time of beginning treatment, and no longer coughs. Her temperature, which was rising pretty regularly to 99.5°, and sometimes to 100° in the latter part of the day, has for some time not gone above normal. The physical signs indicate an arrest of the disease at both apices.

CASE IV.—A widow, twenty-nine years old, whose husband died two years ago of pulmonary tuberculosis complicated with alcoholic gastritis, had always had good digestion, and has been fond of sweets, including candies, and not over-digestible lunches beween meals. She had had a hacking cough since the time of her husband's death, and was greatly emaciated, her weight ranging between eighty and ninety pounds. A year ago, after an attack of influenza, she began to expectorate. She came under my care in February last, and I then found a small consolidated portion of lung below the right apex, as plainly shown by signs recognizable both in front and behind. There were also numerous subcrepitant râles in the same region. She had been seen by Dr. R. G. Curtin, in Philadelphia, some months before, and he had prescribed guaiacol. Her former medical attendant had continued this drug, giving no other medicine. I also directed that the guaiacol be continued in doses of from two to three drops after meals, and placed her at the same time upon a somewhat restricted diet, forbidding especially all lunches between the three regular meals, except that milk was allowed at bedtime, and cutting off rigidly all indigestible dishes.

Constant counter-irritation over the affected spot was ordered, and the patient was strictly enjoined to spend a large part of every day out of doors, except in the worst weather, and to have ample ventilation of her room at night. The clinical thermometer, the regular use of which I always insist upon in all cases of suspected tuberculosis, disclosed

slight rises of temperature for some time after the patient came under my care, never, however, going above 100°, and within a few weeks after the institution of the hygienic measures just described it ceased to rise above 99°. The expectoration also gradually diminished. At the time of my last examination, May 14, there was still dulness at the right apex, both in front and behind, with slightly increased vocal fremitus and wavy respiration, but no râles of any kind, and the patient reported that she had neither coughed nor expectorated for three or four weeks. Her weight had increased to ninety-two pounds, which is above her average for the past six years.

I consider the disease arrested in this case, but the patient is continuing the guaiacol with the still more important hygienic precautions. She now eats all that her appetite demands at the three meals, but takes no lunches except the milk at bedtime.

CASE V.—A shopkeeper, sixty-two years old, of very broad chest and robust build, weighed 220 pounds shortly before he became ill. I was called to see him on January 18, 1894, on account of a moderate hemoptysis. He had been coughing somewhat for six months or more. A small area of dulness was found a few inches below the right apex, anteriorly, and there was feeble respiration over the same region. The bleeding yielded rather slowly to treatment, and was followed by a rise in the temperature, which reached 101° at night, falling to the normal again in the morning. There began to be raised a considerable amount of sputum, which continued to be blood-streaked for a week or more. The cough became very severe, especially at night. The patient had also long suffered from intestinal indigestion, with flatulence and constipation. He was ordered a plain but substantial meal, mainly of meat, eggs, or milk, morning and night, with a light lunch in the middle of the day; also a full pint of hot water an hour before each meal, with a view to overcoming his constipation and lessening his obesity. His chest was sponged with cold water every day, and the skin over the affected region was kept sore with iodin. Creosote was given in small doses after each meal, and on account of the unusually severe character of the cough, which prevented sleep and threatened further hemorrhage, an anodyne mixture had to be administered at night. A slight recurrence of hemoptysis at the end of a week complicated matters, but after this marked improvement set in. The temperature speedily fell to normal, cough and expectoration steadily lessened, and, what most delighted the patient, his constipation and intestinal flatulence were overcome, while his protuberant abdomen sensibly retracted. For nearly a month this improvement continued, and the patient seemed to be getting well, when he contracted a severe "cold" by standing on a street-corner engaged in conversation, after a long walk, on a cold day in March, and the congestion thus set up resulted in another hemorrhage.

From this time on hemorrhages recurred every week or two, in spite of a plentiful use of the best astringents. The infiltration finally involved the greater part of the right lung and invaded also the apex of the left. A cavity has formed in the center of the right lung, and the case is likely now to follow the usual course. After the hemorrhage began to recur with such alarming frequency the hygienic method was virtually abandoned; efforts were made to restrain the violence of the cough at all hazards, and anodyne cough-medicines had to be resorted to freely, regardless of the effect on digestion. Moreover, the family had an invincible dread of fresh air, so that all attempts to carry out the plan of securing a freer oxygenation of the blood were nullified.

CASE VI.—A physician, thirty-six years old, had infiltration below the apex of the right lung when a medical student in Philadelphia in 1879, according to the diagnosis of Prof. J. M. Da Costa. He had fever and cough during most of the following winter, and had to abandon his studies for some time. The disease was later controlled, and he regained good health. In October, 1893, having meanwhile moved to Atlantic City, he again developed cough, with a return of the signs of consolidation of the right lung. His temperature was a little above normal nearly every afternoon until about the 1st of January, 1894, and occasionally, though rarely, reached 101°. He treated himself for the most part, but occasionally consulted me during the months of December and January. He has always had a perfect digestion and made no change in his usual full diet—three regular meals daily, with dinner at night—except that a generous allowance of milk was now substituted in part for other less nourishing foods. He continued in full practice and was riding out of doors in an open buggy during the greater part of every day, and much of the time during the evening. Vigorous counter-irritation was kept up over the affected spot, and creosote was taken to the extent of about fifteen drops daily.

Various tonics, including cod-liver oil, arsenic, and strychnin, were taken at different times. In short, the treatment was counter-irritant, antiseptic, and roborant to the fullest extent, and, what was doubtless most important of all, oxygenation was maintained at the maximum point possible without over-fatigue, by almost continual driving out of doors in a pure air. By the middle of December the signs, as well as the symptoms, indicated a rapid arrest of the disease. The patient's weight at the beginning of the attack had fallen to 158 pounds; it is now 186 pounds. Some dulness persists over the area formerly affected, but otherwise the patient is well. He has had no expectoration and no cough whatever for nearly three months.

In Case V a specimen of the sputum obtained at an early stage of the disease, when the cough and expectoration had almost ceased, was examined microscopically by Dr. D. Braden Kyle, of Philadelphia, and a few bacilli found. No examination of the sputum was made in the other cases, as the physical signs and symptoms were decisive and left

no room for doubt as to the character of the malady in any of them.

The foregoing do not represent selected cases, but include all the cases of undoubted pulmonary tuberculosis that have been under my care for any considerable time during the past winter and spring. One serious case in the third stage which was sent by Dr. Ralph Walsh, of Washington, D. C., remained about two weeks only, as, though some little improvement occurred in appetite and digestion from the change of climate, I was unable to promise any lasting gain from a longer sojourn. A number of others in the early stages, in the persons of transient visitors, were seen a few times, most of them at my office, and, as a rule, there was more or less amelioration of the symptoms, but none of these were under methodical treatment.

The results in the six cases here described were, on the average, considerably better than I have been accustomed to see in former years, when it was not my practice to impose any restrictions upon the diet of tuberculous patients, but rather to encourage the fullest feeding possible. Neither in my experience in Atlantic City during many years previously to the past winter, nor in Thomasville, Ga., during the winter of 1892–93, where I saw a large number of cases of tuberculosis in all stages, were the fever, cough, general nutrition and body-weight found so generally to improve under any of the methods of treatment then employed. These later results have been obtained in four out of the six cases, with the aid of so little internal medicine, and that little addressed almost entirely to the digestive tract, that the conclusion seems irresistible that the management of the diet and hygienic regimen generally should receive the chief credit. The other two cases, V and VI, are the exceptions that prove the rule. Case V had a rather poor digestion and the anodyne and astringent mixtures apparently necessitated by his cough and recurring hemorrhages exerted, without doubt, an injurious influence upon his digestive organs.

Case VI had a stomach that could digest anything, and, therefore, this patient could bear and progress favorably under a more active medication than most others.

It is doubtful whether any drugs yet discovered have a directly curative effect on tuberculous lesions, though there may be a few, including some of the preparations of the hypophosphites, that, by stimulating the circulation of blood in the lungs, aid in improving the nutrition of the diseased tissues. It is probable that the majority of drugs, as well as those changes of climate that seem to exert a favorable influence in pulmonary cases, effect their good results for the most part indirectly by increasing appetite, improving digestion, and stimulating the vital processes generally, thus increasing the quantity and bettering the quality of the blood that reaches the diseased structures. Indeed, we are justified now in believing that an abundance of pure healthy blood, circulating normally in the lungs, is the most essential prerequisite to a cure of pulmonary tuberculosis. Hence the paramount importance of looking closely to the blood-making processes by securing as perfect digestion as possible, together with a complete oxidation of its products, so as to spare the lungs from the injurious task of assisting in the excretion of the poisonous compounds resulting from suboxidation and decomposition. To attain these ends satisfactorily, the total amount of aliment ingested must not be in excess relatively to the amount of oxygen absorbed.

We may, therefore, safely insist upon liberal feeding whenever the patient can exercise freely out of doors in any clean aseptic air.

When, on account of fever, rest of the body is temporarily necessary, a fairly good supply of oxygen is still obtainable by causing the patient to lie on a bed or hammock out in the open air. When this is not practicable, we should have the windows of his bedroom kept widely open, resorting to extra bed-covering if required. In this way, a much larger amount of food can be taken with safety and advantage than when the patient is kept confined in an overheated room.

While insisting that the patient shall be kept out of doors as nearly constantly as possible, and, at all events, shall always, night and day, have an abundance of fresh air to breathe, whether within doors or without, it may be noticed that I have hitherto said little about the relative value of different airs or climates for cases of the disease under consideration. The reason is that I consider the importance of selecting a special climate for such cases greatly overestimated. Certain climates are doubtless somewhat more suitable than others for diseases of the lungs, but the difference is much less than is commonly supposed. The germ-laden air of crowded cities is naturally less curative than that of the country, seashore, or mountain. The purer the air the better, and contrary to a prevalent notion, the colder the air the better, provided only the patient can and will educate himself to be out in it and breathe it freely. It is said that the only climate in the world in which pulmonary tuberculosis does not exist is that of Iceland.

It is true that changes of climate exert a powerful stimulant action upon nutrition for a few months especially. Hence persons afflicted with pulmonary disease who have means to travel can often benefit greatly by changing from the seashore to the mountains or *vice versa*, after they have ceased to improve as at first. But to send tuberculous patients with

slender purses to distant resorts in the hope of finding some peculiar or magic virtues in the air of the place different from those in their own is usually as disappointing as it is cruel. Such patients as can ill afford the luxury of travel, if still in an early and curable stage, should be urged to lead an outdoor life in any locality (preferably away from large cities) where they can do so most conveniently and economically, and where the climate is not so rigorous as to prevent such a mode of life. If they are in a far advanced and hopeless stage they should be made as comfortable as possible in their own homes.

About twelve years ago a clergyman resident in Delaware came to Atlantic City with a diagnosis of pulmonary tuberculosis, made by a prominent specialist in Philadelphia, and sought my advice. It was a plain case, a large part of one lung being consolidated; but softening had not begun. At that time I had given little thought to the subject of diet in such affections, but poor parsons are not likely to be overfed. I told him to give up his pulpit for a year and go into the country, spending his time on horseback or in any way most agreeable to him, so long as he remained in the open air. He was also to keep up counter-irritation over the affected lung. He took the advice, and got well, and was able to resume his work by the end of the year. I have never seen him since, but he often sends me a box of the best Delaware peaches, accompanied by a letter full of gratitude to me for having shown him the way that led him back to health.

AN EXPLANATION OF THE GREAT FREQUENCY OF RICKETS AMONG NEAPOLITAN CHILDREN IN AMERICAN CITIES.[1]

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ALL American physicians who are active in hospital or dispensary life have noticed the great frequency of rickets among Italian patients. A very large proportion of the children of this nationality present well-marked symptoms of rachitis. Indeed, the most severe cases of rachitic deformity seen in orthopedic practice are from Southern Italy. This peculiarity of Italian children is all the more interesting because the disease was, until recently, only occasionally seen in this country, and is still rare among Anglo-Americans. In the monotony of digestive and respiratory disorders of a children's clinic it is safe to predict that in nearly three-fourths of the Italian children the disorder for which they are brought will be associated with rickets, and that this is the only pathologic difference between them and the rest of the community.

The study of the process of acclimatization of the various nations of northern and southern Europe that enter into the composition of our cosmopolitan population is as yet incomplete. Nevertheless, it is certain that any race not inured to our bleak northern climate must not only change its dress and regimen of life, but undergo a kind of cellular transformation in order to be in harmony with its environments and to preserve a vigorous physique in the second and third generations. Adults may endure extreme heat or cold, and be transplanted either to the tropics or the Polar Seas without harm, but this is not true of the children of the first generation, who endure very badly any marked change in the air to which their ancestors have for centuries been accustomed. History records many instances of the physical decadence of northern people who have migrated to semi-tropical regions.

Rachitis must be regarded as a serious condition in a child, as a constitutional deterioration, localized in the skeleton, muscles, nervous and digestive systems. A rachitic child has a lessened resistance to all of the acute infections diseases, especially those involving the respiratory tract. If rickets be increasingly prevalent among our city poor, and if it shows itself in its most serious phases in any one particular class or nationality, the fact is worthy of earnest scrutiny and investigation.

In the study of rachitis among Italian children in American cities, it is, of course, necessary to determine (1) the proportion of rachitic children among Italians; and (2) the proportion of rachitic children among other nationalities. Lastly, if rachitis be most frequent among Italians, the various supposed causes of the disease should be analyzed, to discover what especial factor, as diet, climate or habit of life, is chiefly in operation to produce this constitutional dyscrasia.

The object of this article, after indicating the degree of the prevalence of rickets among the various races of our population, is to show that the true reason for the very frequent development of the disease in Italians is found in the fact that it is the effect of our cold, damp, northern climate upon the offspring of a race that has lived for many hundred years in the warm, dry, sunny air of Naples and of Sicily. It is the physical deterioration of a southern race in a northern climate. I hope to be able to prove that the usual causes of rickets—city life, improper feeding, acute or chronic digestive disorders, bad air, crowding in dwellings, uncleanliness, infectious disease—which produce rachitis in a moderate percentage of the children of the northern races, act with far greater frequency and virulence

[1] Read before the meeting of the American Pediatric Society, held at Washington, D. C., May, 1894. Printed by courtesy of the Archives of Pediatrics.

upon the first generation of Neapolitans born in America.

To ascertain the exact ratio of rachitic children among Italians and other nationalities, I shall present the statistics of my dispensary service for a year.

Total number of children under three years, 200: Italians, 108; other nationalities, 92. Of the Italians, 76, or 70 per cent., were rachitic. Of mixed nationalities 11, or 12 per cent., were rachitic.

The parentage of the latter class was Scotch 1, American 1, Jewish 1, German 2, Irish 2, Polish, 3, not noted 1. Nearly all of the children were born in this country, but were chiefly of foreign extraction. My diagnosis of rickets was made after a careful examination of each child, and was based on well-marked beading of the costo-chondral articulations, craniotabes, etc. Characteristic transverse constrictions of the thorax were invariably more pronounced among the Italians—all of the cases of craniotabes and genu valgum or varum were among them. Whole families of children, as seen in successive years, were affected, so that rachitis was not only more frequent, but also more severe among Italians.

Of the seventy-six rachitic Italian children all had the classic rosary, and most of them were fat; many of them showed extreme muscular weakness, and were late in holding themselves erect and in walking; eighteen had transverse constriction of the thorax, with extreme narrowing and deformity of the chest; four had craniotabes, one with hydrocephalus; six had genu valgum; eight extreme muscular weakness; three enlarged spleen; two enlarged liver.

I was unable to discover that rickets in the Italians had any effect in delaying dentition. Most of the Neapolitan babies developed their teeth early, and without disturbance.

Eleven children, not Italian, all had the rachitic rosary; two had transverse constriction of the thorax. There was no craniotabes or pronounced limb-deformity among them.

The proportion of rickets among children of other races, 12 per cent., is small, and is probably insignificant as compared with that found in the densely populated cities of the Atlantic coast. In Buffalo the tenement-house class is relatively small; the houses are nearly all detached; and very little real destitution exists, even among recent emigrants.

Parry, in 1878, found 28 per cent. of all children brought to the Philadelphia Hospital to be rachitic; 20 per cent. of the children coming to autopsy in the New York Foundling Asylum showed rachitic changes in the bones.

Having demonstrated something of the prevalence of rickets in Buffalo, 70 per cent. of Italian and 12 per cent. of the children of other nationalities, we may next inquire more precisely into the antecedents, environments and mode of life of the Italians in their original home. Nearly all of the Italians in Buffalo emigrated from the country districts about Naples, the modern Italian province of Campania; a very few came from Sicily. None, to my knowledge, came from the cities of Naples or Palermo, and none from Central or Northern Italy. It is, therefore, understood that the Italians alluded to in the paper are Neapolitans. Further, the Neapolitans differ as widely from the Tuscans or Piedmontese in temperament, mode of life, and in climatic surroundings as do the citizens of Boston, Mass., from those of Charleston, S. C. The climate of Turin, in Piedmont, is sub-Alpine, and in the winter months is colder than that of Copenhagen.

We may now raise the question as to whether the frequency of rickets in Neapolitans is not merely a racial peculiarity, a phase of the southern Italian constitution in infancy. Upon this point I shall quote from Hirsch's *Historical Geographical Pathology*. In this work it is declared "that rickets exists everywhere, although most common in Europe and North America, in the temperate zone; that a cold, damp climate, subject to frequent changes, is favorable for its development, as is shown by its existence in endemic form in England, Holland, France, Germany, Austria, and Northern Italy."

Rickets is extremely rare, except in a few great cities, in Southern Italy, Spain, Greece, Egypt, Syria, and among the half-starved vegetarian people of Hindostan, China, and Japan. Rachitis is rare at high altitudes and in the extreme north, and is found in endemic form in large cities. Its absence in tropical and semi-tropical regions is contrasted with the great infant-mortality from all kinds of diarrheal diseases in these climates. Hence, as rickets is rare in the districts of Southern Italy, whence my patients are drawn, and is present in 70 per cent. of the first generation of Neapolitans born in this country, being nearly six times as frequent among them as among Anglo-American, Irish, Germans, Poles, and Canadians, some especial cause must exist to produce this grave deterioration in physique and to intensify the so-called blood-irritant or other cause of the disease. I shall enumerate the various factors that may play a rôle in the etiology of rachitis, to discover if the endemic character of the disease among Neapolitans in North American cities be the result of any one cause.

According to Cheadle, any injurious influence operating in not too sudden a manner on an infant may produce rachitis. The Italian colony in Buffalo (including between 4000 and 5000 persons) lives near the harbor, on damp ground, in old two-storied and three-storied tenement-houses and frame

cottages abandoned by the Irish. Nevertheless, the population in this neighborhood does not exceed 100 to the acre, as in the vicinity there are large open spaces, wide streets, and railroad-yards. The parents are strong, healthy, young people. The women are well-shaped and have easy labors. I can find no ground for believing that there is any hereditary weakness of constitution or tendency to rachitis. All of the adults appear well nourished. The fare includes soups, meat, bread, cheese, and vegetables, and is as plentiful, if not as expensive, as the food of the average American laborer.

Crowding in dwellings is more common among the Italians than among the rest of the community. A family of five or six usually occupies two rooms, the cooking and eating being done in one room and the other being used for sleeping. It goes without saying that from our standard of living their dwellings are dirty, overcrowded, and poorly ventilated.

The babies of the family are housed for a large part of the year in cold or rainy weather, and must continually breathe a polluted atmosphere, a circumstance that undoubtedly would depress an infant's health. This point will be discussed later in connection with climate. If overcrowding in sleeping-rooms and lack of fresh air were the sole cause of rachitis, it would be nearly universal among all recent emigrants from Ireland, Poland, and among the lower class of Hebrews, as well as among Neapolitans.

Most of the Italians say that they are better fed and clothed in America and that their sleeping-rooms are not as crowded as the small, smoke-filled hovels inhabited by the laboring-class in Naples, and are better ventilated.

Concerning the hygiene of the skin, the Italian babies were never as clean or as well cared for as the average American, Irish, or German. However, to say that they were, as a class, filthy would be untrue. They were warmly clad in winter, being usually swathed in a long, thick roll of woollen cloth.

Artificial diet, the feeding of infants with cows' milk, condensed milk, starchy or dextrin food, with an excess of carbo-hydrates and a deficiency in fats, has been rightly held to be a frequent cause of rickets; yet most of the Italian children received the ideal infant-food, breast-milk.

Analysis of food of Italian children under one year. Total number, 59.

Rachitic, 36: suckled, 21; suckled and fed, 8; artificially fed, 7. Not rachitic, 23: suckled, 17; artificially fed, 6.

Prolonged nursing cannot properly be held to be a cause of rickets, as in Japan, where children are suckled for two or three years, rickets is scarcely ever seen. A small proportion of the Italian women nursed their children for from fifteen to eighteen months. It was common to see rickets in children whose digestion was apparently good and who received no other food than breast-milk. Nearly all of the artificially-fed babies received some breast-milk up to the age of twelve months, the milk being supplemented by soups, condensed or cow's milk or gruel. The quality of the breast-milk of the Italian women may be questioned, as it was not analyzed; yet the evidences of poor milk, deficiency in fats, and excess of albuminoids, were not shown by any usual symptom, stationary or diminishing weight, or habitual vomiting. On the whole, the rules of a proper infant-dietary were no more frequently violated among the Italians than among other races; indeed, the Italian babies were more frequently breast-fed than the remainder of the dispensary patients.

Influence of intercurrent diseases. As a child is seldom brought to a medical clinic for rickets itself, I will state the various conditions for which the Italian children were treated. Total, 76.

1 pneumonia; 21 diarrhea; 5 dyspepsia; 3 meningitis; 9 bronchitis; 12 whooping-cough; 1 congenital heart-disease; 3 tonsillitis; 1 typhoid fever; 1 hydrocephalus; 1 Pott's disease; 2 syphilis; 6 extreme muscular weakness; 2 otorrhea, 1 eye-trouble; 1 injured spine; 4 not recorded; 1 cerebral monoplegia; 1 limb-deformity.

Pulmonary diseases, bronchitis and broncho-pneumonia, complicating measles and whooping-cough, as seen in the dwellings of the Italians, were frequent and fatal among them; yet the large mortality from respiratory diseases among these children might properly be regarded as due to the weak respiratory muscles and the soft ribs of rachitis.

Digestive disorders, chronic vomiting, and acute or chronic diarrhea were no more severe or more frequent among Italians than among other patients. It is nevertheless true that any digestive trouble is more prolonged in a rachitic baby and yields less readily to treatment than in a previously healthy child. I was unable to observe that the digestive disorders of these rachitic babies were other than intercurrent affections. The rachitic children were usually brought for some acute malady of a few days' or weeks' duration, and it was evident that the constitutional disease had developed slowly and without marked symptoms.

When all these causes of rachitis are reviewed it is certain that enough are in operation to produce the disease in a moderate proportion of Italian children as well as in those of other nationalities. The conditions are insufficient to account for the fact that rachitis is nearly six times as prevalent in Italians as in other classes of the community, and is present in 70 per cent. of a race with whom the disease is rare in the mother country.

I have not yet discussed the influence of climate in the etiology of rachitis, and this Theobald Palm regards as the chief cause. Virtually all of my patients were born and lived in the same climate. The disease is rarest among Anglo-Americans who have lived in the country for generations. It prevails to a moderate extent among the children of English, Irish, Germans, and Poles. These races are inured to the cold, changeable atmosphere of Northern Europe. It is far different, however, with the Southern Italian, who has lived for many centuries under the clear skies and in the warm sunshine of Naples and Sicily. In these fortunate regions men, women, children, and babies are out of doors most of the year.

Besides the differences in climate between Buffalo and Naples, which are very great, the Italian babies in our American cities are housed for a large portion of the year on account of inclement weather, and breathe damp, foul air, which is always too cold or too hot. If there be any law of heredity, a race whose vitality and nutrition are accustomed to a semi-tropical climate and pure warm air cannot thrive amid such surroundings. The change is too sudden and acute, both in temperature and in atmosphere.

What are the differences in climate between Naples and Buffalo? I have constructed a chart indicating, in rather a schematic way, the temperatures and rainfall of the two cities, whose climate is a fair index for the surrounding districts.

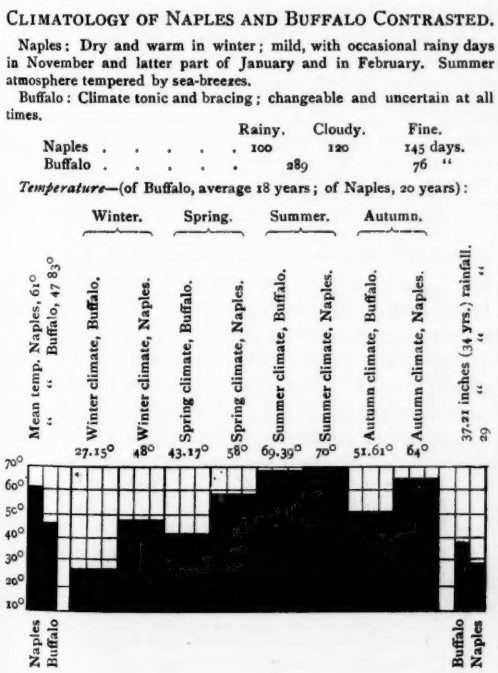
CLIMATOLOGY OF NAPLES AND BUFFALO CONTRASTED.

Naples: Dry and warm in winter; mild, with occasional rainy days in November and latter part of January and in February. Summer atmosphere tempered by sea-breezes.

Buffalo: Climate tonic and bracing; changeable and uncertain at all times.

	Rainy.	Cloudy.	Fine.
Naples	100	120	145 days.
Buffalo	289		76 "

Temperature—(of Buffalo, average 18 years; of Naples, 20 years):



The situation of Buffalo, in 42° 53′ northern latitude, on Lake Erie, exposes it to bleak winds in the autumn, winter, and spring; the annual rainfall is 37.21 inches, 8.21 inches greater than that of Naples, which is situated in 40° 52′ northern latitude. In Buffalo variations in temperature are very great and very sudden. The mean temperature for a year in Naples is 61°, in Buffalo 47.83°—that is, 13.17° lower than in the Italian city. The winter temperature of Naples is 48°, that of Buffalo 27.15°; the American city is thus 21.85° colder. The mean temperature in spring in Naples is 58°, in Buffalo 43.17°; Buffalo has the colder temperature by 14.83°. In summer, curiously enough, the mean temperature of both cities is nearly the same, about 70°. The autumnal difference is 12.39°, Naples having a mean temperature of 64°, Buffalo 51.61°. Between the winter and summer climate of Naples the variation of temperature is 22°, of Buffalo 42.24°. Again, Buffalo has only 76 clear days in a year compared with Naples, which has 145.

The intrusion of a southern race into a northern climate is an occurrence that has few parallels in history. It is reasonable to suppose that serious changes in physique seen in the first generation would follow a change of residence from an out-of-door life in a semi-tropical country to the gloomy skies and long winters of the North Atlantic and lake cities. In proof, I may point to the rapid deterioration of negroes in cold climates, or to the physical decay of the Anglo-Saxon race in India or in the hot climate of North and South America.

Whatever may be the disadvantages of life in warm climates, whether of crowding in dwellings, bad drainage, water, and food, it is certain that rickets is seldom developed among the natives of Southern Italy, Egypt, and India. The probability is that the misery, ignorance, and neglect of hygiene amid which the children are reared are in some degree offset by the bright, warm sunshine. To secure a perfect development for the young of the human species a large portion of the day should be spent out of doors, and, if possible, in the sun. This cannot be accomplished with the children of the city poor, and it is to this lack of pure air and sunlight that we may attribute the spread of rickets in densely populated urban communities. With the first generation of Neapolitans born in American cities, all of the causes of rickets—improper food, bad air, depression caused by infantile maladies—are intensified and accentuated, and the presence of rachitis in seven-tenths of the Neapolitan babies in Buffalo indicates a constitutional deterioration from a great and sudden change in environment.

In plants and animals, adaptation to a different climate is never effected suddenly—a number of healthy adult individuals are first transplanted to

some intermediate station, where they may grow for several years. Some of the stock may develop vigorously, some deteriorate. As soon as the stock has been exposed to all the vicissitudes of climate the healthiest individuals may again be moved farther north, the necessary nursing and protection being of course given. Man has certainly greater powers of adaptation to climatic changes than animals or plants; still the history of the early years of a migration to a different climate, conducted even under the hygienic laws of a high civilization, is usually one of suffering and great infant-mortality.

The Teutonic races have always fared best when they have found a climate like that of their original home. Man is best able to maintain his health and multiply when he travels in isothermic lines. Migration either to a warmer or to a colder climate should be conducted slowly, step by step, allowing one or two generations to intervene before the extreme is reached.

In conclusion, I shall quote from Theobald Palm's excellent article in the *Practitioner* on the "Etiology of Rickets." He says: "The effect of light upon the human organism is obviously more complex than its direct chemical action upon the tissue immediately exposed to it. The exhilaration which we experience in bright weather, and the depression caused by dull, gray skies, must have a corresponding physical change in the nutrition or molecular condition of our nervous centers, and these react upon the general nutrition. The continuous withdrawal of a due measure of this normal stimulus to healthy functional activity must produce upon a young, actively-growing organism serious and far-reaching results." He also states that as light is essential to the well-being of the growing organism, the exclusion of light is a condition of development of the same organism in the embryonic stage. He suggests that the deficiency of light and sun after the embryonic stage is past, when nutrition is dependent on chemic changes of light and air, lead in plant and animal to partial continuance of the embryonic state, as seen in man and higher animals in rickets in the continued growth of embryonic cartilage instead of its conversion into bone.

VITAL STATISTICS OF THE NEGRO.

BY FREDERICK L. HOFFMAN,
OF HAMPTON, VA.

IN THE MEDICAL NEWS for April 7, 1894, p. 389, Dr. M. V. Ball discusses at some length the differences in the mortality of the white and negro races, and maintains that these differences are due more to social causes and environment than to permanent race-characteristics. He advances the theory that if the negro were placed, from childhood up, under the same social influences as the white man the present differences in the mortality would probably disappear. Do these conclusions bear examination in the light of well-known facts on the subject? Or is it possible to bring forward proofs to the contrary and to establish the position held by a large number of writers on the subject, that there is among the negroes a well-recognized race-proclivity to disease and death which manifests itself even when the negro is placed under exactly the same conditions, social and economic, as the white race. To do this will be my aim in this paper.

In the first place it will be necessary to bring forward some figures as to the relative mortality of the two races. From a recent report of Dr. J. S. Billings I have compiled the following table, showing the respective death-rate (stillbirths included) for a number of Southern cities:

	Rate per 1000.	
	White.	Colored.
Washington, D. C., 1890 . .	19.79	38.22
Charleston, S. C. " . .	24.75	53.94
New Orleans, La. " . .	25.41	36.61
Richmond, Va. " . .	22.25	40.80
Memphis, Tenn. " . .	23.37	29.97

According to this table the difference in the mortality of the two races is anywhere from 25 to more than 100 per cent.—a difference large enough to warrant serious consideration. Are these differences accidental or permanent? An investigation of the vital statistics of any city in the South will show that year after year, for the past twenty years, this difference has been about the same.

In the following table I have brought together the death-rates, according to race, for the two cities, Washington, D. C., and Richmond, Va., for the period from 1876 to 1892.

	Washington, D. C.[1]		Richmond, Va.[2]	
	White.	Colored.	White.	Colored.
1876 . .	19.54	40.78	22.60	31.10
1877 . .	19.97	38.22	20.70	32.50
1878 . .	19.28	37.57	19.20	29.90
1879 . .	19.05	36.90	20 90	31.90
1880 . .	17.63	35.71	20.70	36.30
1881 . .	18.18	31.27	20.70	41.80
1882 . .	18.91	34.54	20.70	36.70
1883 . .	17.97	30.69	19.70	36.50
1884 . .	19.71	32.29	20.30	37.10
1885 . .	19.97	34 45	20.70	32.40
1886 . .	17.96	32 35	19.10	31.40
1887 . .	17.74	31.15	19.90	36.40
1888 . .	18,52	30.16	19.90	33 60
1889 . .	15.96	30.49	18.30	33.60
1890 . .	17.25	32.87	22.30	37.80
1891 . .	18.27	32.68	20.70	34.10
1892 . .	19.67	31.19	19.20	33.10

In no instance does the colored rate approximate the white rate. Without exception the colored rate exceeds the white rate by a ratio of from 50 to 100

[1] Annual Report of the Health-office for 1892.
[2] My own calculation for inter-censal years.

per cent. On the basis of the statistical law of large numbers the assertion may be made that the cause of such a difference must be fundamental and permanent rather than social and transient.

But Dr. Ball maintains that if the social conditions were the same this difference would disappear. We, however, possess in the records of the United States Army proof to the contrary—proof so convincing that it will be hardly necessary to add anything further in support of the theory of distinct race characteristics. The following little table shows for three census years the mortality in the United States Army according to color. The ratios are based on 1000 of mean strength for each race:

	White.	Colored.
1870	13.5	20.6
1880	9.9	19.5
1890	8.4	11.5

I cannot do better than to quote at some length the language of the Surgeon-General in regard to the characteristics of the negro race. He expresses himself as follows in his report for 1889 (p. 18):

"The death-rate of people of African descent is always higher than that of the whites living in the same settlement. This is ascribed, for the most part, to the comparative poverty of the colored people, which crowds them into their dwellings in the less desirable part of the locality. *It would seem, however, from the medical report of the army, that there is a race-proclivity to disease and death;* for, although the colored troops are in all respects subject to the same influences as the white troops at the same station, the cases of sickness and mortality are greater among them than among the white troops. Both sets of men are selected by the same recruiting officers, sent to the same depot, transferred for service to the same posts, lodged in similar quarters, furnished with the same allowance of clothing, use the same water and the same food-supplies, perform the same duties, and are subject to the same exposure, yet the admissions to sick-report were 1.464 per 1000 for the colored, and 1.249 per 1000 for the white troops. The non-effective were 44.56 per 1000 as compared with 27.67 for the white troops, and the death-rate 13.66 per 1000 for the negroes, as compared with 7.55 for the white troops."

Coming from such a recognized authority and in such an emphatic manner, the remarks just quoted deserve the most careful consideration of the student of the subject. But the same report contains another proof of this race-proclivity to disease and death. As will be noted in the next table, for the British troops in the West Indies, the mortality and morbidity of the negro under conditions exceptionally favorable to him are still largely in excess of those of the white race.

MORTALITY AND MORBIDITY IN THE BRITISH ARMY IN THE WEST INDIES (ratio per 1000).

		Admission to sick-report.	Deaths.	Discharges.	Non-effective.
1886	White,	1.168	14.70	11.76	55.09
	Colored,	1.292	19.64	16.07	57.25
1876-85	White,	0.893	15.42	13.95	44.68
	Colored,	1.074	15.38	26.79	58.38

These figures are supported by the mortality-reports of the islands in the West Indies. From the blue-books, registration-reports, and annual reports, I have compiled the following table, which I believe is the first attempt to present in tabular form the mortality for a number of West Indian colonies. It has been impossible in the table to separate the races, but the white population forms such a small percentage that the result is but slightly affected. The rates are per 1000 of the living population:

Antigua,	35.5	Virgin Island,	19
Barbuda,	30	Martinique,	35
St. Kitts,	42	Guadeloupe,	22.5
Nevis,	35	Trinidad (1893)	27.6
Dominica,	18	Jamaica (1893)	20.9
Monserat,	20	Barbadoes(1891)	37.26
Bahama Islands	27.3		

We have here the returns from a large number of islands, which almost without exception show a rate above 20 per 1000. If we take into consideration possible omissions in the registrations, the figures presented will fall below rather than above the actual condition. As life in the West Indian Islands is to the negro a paradise on earth, being an out-door rural life, with little manual labor attached, we may well ask the question what his death-rate would be if he were placed in densely populated cities. It is difficult to ascertain the actual natural increase in the population, due to the constant inter-migration between the islands and the influx of coolie population. If predominance of females, however, be considered a factor as showing a population making but a small natural increase, the fact that most of the islands have an excess of females might be cited in support of such a theory.

But, to come back home again, let us consider the effect of similar social surroundings in the two races. For Richmond, Virginia, I have recently compiled the data for the different wards, and find that those wards that contain the largest colored element also show the largest death-rate, while the "white wards" of the city show much more favorable rates for the colored population. But the fact is that there still remain the same differences between the two races; that is to say, if the white rate goes down so does the colored rate, but the relative position of each remains unchanged. This will appear clearly from a study of the next table.

Of course it is not possible to trace the population distinctly, but it may be accepted in a general way that the first three wards represent the so-called "better part" of the city, while Jackson ward in particular is the so-called "Africa" of Richmond. Thus, placed under better social and sanitary conditions, the death-rate will diminish, but will still be from 50 to 100 per cent. in excess of the white rate. Two recent reports of the Census Office on the

vital statistics of Baltimore and Washington, New York and Brooklyn show similar results.

MORTALITY OF RICHMOND, VA., BY WARDS AND COLOR.

(Rate per 1000 of population, 1890).

Wards with large white population:				
Madison,	white rate,	18.3	Colored rate,	30.0
Monroe,	" "	14.8	" "	21.7
Clay,	" "	18.0	" "	29.0
Wards with large colored population:				
Jefferson,	white rate,	25.5	Colored rate,	37.0
Marshall,	" "	24.0	" "	39.0
Jackson,[1]	" "	38.9	" "	40.0

If we now proceed to consider the influence of a high death-rate on the average duration of life, it will be seen by the table that follows, for the city of Washington, D. C., that there is an enormous difference between the length of life of the two races. I give the data for four different years, covering a period of thirteen years:

AVERAGE AGE OF WHITE AND COLORED DECEDENTS IN WASHINGTON, D. C., 1881–92.

	White.	Colored.
1881	32 years.	20 years 11 mos.
1885	32 years 3 mos.	22 " 7 "
1890	33 " 8 "	22 " 10 "
1892	34 " 6 "	23 " 4 "

On the basis of these figures a white man, on an average, has a longer duration of life by some ten or twelve years than the colored man—a difference that has been recognized, and has been verified by subsequent experience, by all the life-insurance companies engaged in business on the so-called industrial plan. The following are the figures of the Prudential Insurance Co., of Newark, N. J., as quoted in the *Journal of the American Statistical Association*, vol. iii, p. 351:

LOSS IN CLAIMS PER $1000 INSURED, 1883–93.

	White.	Colored.		White.	Colored.
1883,	15.30	23.41	1889,	15.45	21.43
1884,	15.27	18.75	1890,	17.11	21.49
1885,	16.04	22.47	1891,	16.71	21.44
1886,	17.90	24.44	1892,	17.91	21.32
1887,	16 59	21.49	1893,	17.34	17.89
1888,	16.60	21.68			

We have here another proof of the permanency of the difference in the mortality of the two races. Without exception the colored rate is in excess of the white rate, and that, too, in view of the fact that a medical examination was made in most cases, and that, therefore, the persons insured were much more nearly similar than the population in general.

If we now consider the mortality by groups of ages we meet with another instance of racial characteristics. On the supposition, generally accepted by economists, that the period of life below twenty is of little economic value, it will be important to a population to maintain as large a number of individuals as possible beyond the twentieth year. From the report of the Health-office of the District of Columbia for 1892, it appears that 59.90 per cent. of white males and 57.88 per cent. of white females survive the twentieth year against 38.51 per cent. of colored males and 42.24 per cent. of colored females. The economic loss that must result from such excessive mortality below the age of twenty it is difficult to estimate. If, further, we consider the age of forty as the end of the productive period, and as that portion of life's span in which we should enjoy the result of life's labor, we find, on examination of the same report, that 43.36 per cent. of white males and 38.94 per cent. of white females survive the fortieth year, against a percentage of 24.25 colored males and 24.27 colored females.

Both of the instances cited will confirm the assertion made in the beginning, that the characteristics of each race are fundamental, and not merely due to environment or lowly social condition. This point is brought out more clearly if we bring into juxtaposition the average duration of life of native and foreign and white and colored, which I have done in the next table for three American cities:

AVERAGE DURATION OF LIFE BY NATIVITY AND COLOR FOR THREE AMERICAN CITIES.

	Boston, Mass.		Providence, R. I.		Washington, D.C.	
	Native.	Foreign.	Native.	Foreign.	White.	Colored.
1888,	32.66	31.01	35.66	30.29	33.16	22.90
1889,	31.56	31.01	36.18	31.19	32.66	21.90
1890,	33.75	32.32	35.14	30.03	32.66	22.83
1891,	34.47	32.51	36.88	31.01	34.58	22.75
1892,	32.86	31.45	36.39	32.70	34.50	23.25

Without exception, the native and foreign rates differ but slightly, while not in a single instance does the native or foreign rate approach the high rate of the colored population. The fact is well known that the foreign element of our large cities forms the principal population of the slums; yet the general death-rate does not seem to be affected by the mode of living. If the high rate of mortality among the colored population be due in the main to unfortunate social and economic conditions, why should not also the foreign element be affected in a similar manner? It is true that the Irish population shows some similarity in its mortality to the negro population, but until the collected data on the subject have been published a consideration of this point would be inadvisable.

Coming down to specific causes of death, the special liability of the negro to tuberculous disease is so well known as to need but passing mention here. From an article of mine on the "Vital Statistics of the Negro" (*Arena*, April, 1892) I quote the following table, showing the percentages due to this cause for six leading Southern cities. The figures repre-

[1] The high white rate for Jackson ward for 1890 was abnormal. The normal rate is from 22 to 26 per 1000. See Richmond Dispatch, July 17, 1894.

sent the percentage of deaths due to pulmonary tuberculosis to the total mortality:

MORTALITY FROM PULMONARY TUBERCULOSIS, BY RACE.

	White.	Colored.
Washington, D. C.	0.11	0.16
Atlanta, Ga.	0.11	0.15
New Orleans, La.	0.12	0.17
Charleston, S. C.	0.08	0.15
Memphis, Tenn.	0.12	0.18
Richmond, Va.	0.10	0.11
Average	0.10	0.15

We have here another striking proof of the constitutional difference between the two races, but the following table, compiled from the *Surgical and Medical History of the War*, will illustrate the point more forcibly:

DISEASE AND MORTALITY OF THE U. S. ARMY, 1861–65.
(Per cent. of total cases treated.)

	White.	Colored.
Pulmonary tuberculosis	0.39	0.91
Typhoid fever	0.36	0.56
Chronic diarrhea	0.16	0.27
Inflammation of the lungs	0.24	0.32
Average	0.29	0.51

Here again we meet with a proclivity to disease and death considerably in excess, *in every instance*, of the white rate. Need more proof be brought forward to maintain the assertion that the negro and the white man differ fundamentally in their physical organization and power of vital resistance? I could quote authority after authority to prove that such is really a fact. It was stated, as far back as 1845, of the freed negro in the Eastern Pentitentiary of Pennsylvania, by President Matthew L. Bevan, that the increase in deaths comes from the blacks. The increase in the mortality is found in the fact that the colored inmates from the County of Philadelphia are *so constitutionally diseased* as under any and all circumstances to be short-lived from their character and habit.—De Bow's *South and West*, vol. ii.

The condition of 1845 is the same to-day, and the city negro brought into direct competition with the white race has usually but one avenue out of his dilemma—the road to prison or to an early grave. Crime among the colored population of our large cities has been considerably on the increase; and, like his mortality, his morality differs fundamentally from the morality of the white race. Dr. A. Corre has made a study of the negro in the French West Indies, and comes to the conclusion that "the negro and the white man have *distinct physical organizations*, and, as a result, *distinct social aptitudes* (*Le Crime en Pays Créoles*, Paris, 1889). A similar study of the negro criminal in this country would lead to similar conclusions. The Northern cities contain the bulk of the negro population in the Northern States. In the large cities he crowds into a few wards, and forms his little Africa, no matter where he may be. If we select the four States of Massachusetts, Rhode Island, New York, and Pennsylvania, we find on examination that of the total colored population of these four States 33 per cent. live in thirty-nine wards of six leading cities. These same thirty-nine wards contain 25 per cent. of the total colored population of the nine North Atlantic States. If we take up the statistics of the State of Ohio we find that twenty wards of six principal cities contain 27.4 per cent. of the total colored population, while the same twenty wards contain white population. If we consider the population only 8 per cent. of the total of the six cities we find that the same twenty wards contain 51.6 per cent. of the total colored and only 14.3 per cent. of the total white population.

But Chicago furnishes the most surprising condition. Here we find 64 per cent. of the total colored population of the city massed together into the First, Second, and Third Wards, which are the very slums of the city. The same three wards contain only 6.3 per cent. of the total white population. What else but a high rate of mortality and low degrees of morality could be the result of such tendencies of a race wholly unprepared for the intensity of the struggle for life in our large cities. If we take, for example, the proportion of criminals to the total population we shall find on examination of the report of the Chicago Police Department that the proportion of arrests of persons of color is 1 to every 2.7 of the colored population, as contrasted with a ratio of 1 arrest to every 19.1 of the white population. The negro population of the city increased 128 per cent. during the decade 1880–90, while the number of arrests increased 305 per cent. The white population increased 139 per cent. during the same period, but the number of arrests increased only 154 per cent.

For other cities the condition is very much the same. For the State of Pennsylvania the ratio of white convicts to the white population for 1890 was 1 to every 3504, in contrast with a ratio of 1 colored inmate of a penitentiary to every 370 of the colored population. In the city of Washington the percentage of illegitimate to total births is 26.40 per cent. for the negro and 2.5 per cent. for the white race. Yet the negro has been under religious influence for two hundred years, and in the capital he has had all the exceptional opportunities for mental and moral advancement. Does it seem reasonable to suppose that his present high rate of mortality and low standard of morality are due solely to environment?

On the strength of all the facts that are here brought together I cannot but repeat that the

differences are physical and permanent, and if a modification or change of his present-day tendencies is possible, the negro will first have to learn obedience to the laws of morality and hygiene, and adherence to the principle of duty rather than to the gospel of the rights of man. What to the white race is liberty is to the negro nothing but license, and if he has abused the freedom that was given him, it is not he who is to blame so much as those who had his education in their hands. What the negro needs is education—*genuine, not spurious*—and a sounder teaching of the first principles of every-day morality. To effect a change in his present-day tendencies will take generations, but only on the principles that have preserved the Anglo-Saxon race from decay will he be able to raise himself to a higher level and preserve his race from ultimate extinction.

GASTROSTOMY BY A NEW METHOD.[1]

BY M. STAMM, M.D,
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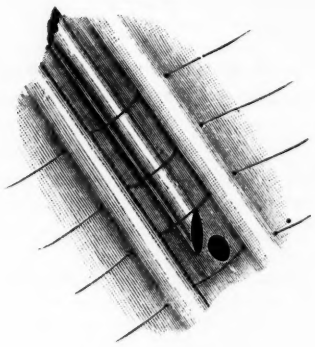
THE recent successful results of gastrostomy, thanks to improved methods, have made this a well-established operation in cases of carcinomatous or cicatricial stricture of the esophagus, and have prompted us to operate at an earlier time than in former years. Before the antiseptic period, among twenty-eight cases one alone recovered—or at least lived forty days after the operation. Since that time more fortunate results have been obtained, and it may now justly be maintained that a fatal issue is principally due to the fact that the operation has not been resorted to before the patient was too much reduced in strength.

Having eliminated the danger of sepsis, the next object is to overcome other sources of danger or annoyance. One important point in my mind would be to lessen the effects of shock in some cases in very feeble persons by feeding the patient as soon as possible after the operation through the fistula. The next and probably most important point would be to prevent the escape of food or gastric juice from the stomach, which would have a tendency to corrode and infect the wound. Quite a number of methods have of late been introduced with a view of obviating these sources of danger.

Hahn's method has for some time found favor with quite a number of surgeons. It consists in fixing the stomach to an opening made in the eighth intercostal space on the left side, so that the ribs perform the function of a valve. This was, no doubt, an improvement over the older methods, but, in some cases operated upon by Von Hacker, ulceration of the ninth costal cartilage resulted, and had these cases lived for a longer time serious mischief would very probably have ensued. Von Hacker, after this, tried to prevent leakage from the fistula by using the left rectus abdominis muscle for the formation of a sphincter, and was able to report twelve cases operated upon in this manner; the stomach, except in one case, not being opened until after an interval of forty-eight hours. In all of these cases recovery from the effects of the operation took place, but it was necessary to use an inflatable double rubber bulb to prevent leakage.

FIG. 1.



Method of Witzel.

Girard also makes a sphincter from the rectus muscle. Parallel to the operation-wound he dissects out strands of muscle-fiber about the thickness of a finger; these he crosses laterally, and draws the stomach through the sphincter-like opening. Ssabanejew makes an incision two or three inches in length along the left lower border of the ribs, beginning at the end of the ninth rib. He then pulls out the stomach by catching up a fold with a pair of intestinal clamps, and makes another incision near the sternal end of the sixth rib, from half an inch to an inch to the left of the mammillary line. With blunt instruments he separates the soft tissues between the first incision and the second, in this way forming a sort of tunnel. The parietal peritoneum is then stitched to the serous coat of the stomach at the base of the fold. The apex of the fold, after having been pulled through the tunnel, is stitched to the second incision. A small incision is afterward made into the stomach, and a drainage-tube is introduced.

The method of Kocher is somewhat similar to that just described. This surgeon makes a vertical incision, about four inches long, two inches above and to the left of the umbilicus; then he draws out a part of the stomach for about four inches. After closing the abdominal opening except for a distance

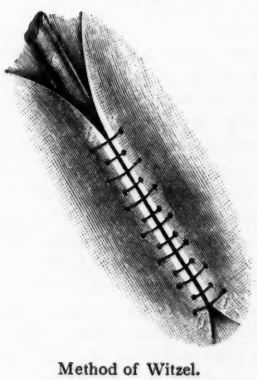
[1] Read before the Ohio State Medical Society at Zanesville, Ohio, May 17, 1894.

of about two inches, he stitches the stomach to the fascia and peritoneum with a continued suture, and then makes a channel in the manner adopted by Ssabanejew.

A procedure which has of late been highly extolled by some surgeons, and which so far has really given excellent results, is that devised by Witzel. Keen, of Philadelphia, in a recent article claims that this operation has reached such a stage of perfection that there can be very little room for improvement. From the description of his case, however, I see that he fed his patient for two days by rectal enemata—probably for fear that fluids might ooze out through the wound and produce infection. And yet I think that prompt feeding through the tube is a very important factor in some cases in feeble persons; at least, it impressed me so in a case in which I operated after Hahn's method a few years ago, in which the patient was *in extremis*. The case was one of cicatricial stricture caused by swallowing nitric acid, the patient dying from shock about twenty-four hours after the operation. I still feel that prompt feeding through the stomach might have averted the fatal result.

The operation of Witzel consists in establishing a canal between two folds of the gastric wall. A large surface of the stomach is drawn out through the abdominal wound, and a small incision is made into the viscus to admit a rubber tube of the thickness of a lead-pencil. This tube is stitched to the stomach with catgut, whilst the upper end projects from the external wound. Two parallel folds of the stomach are then taken up so as to envelop the

FIG. 2.

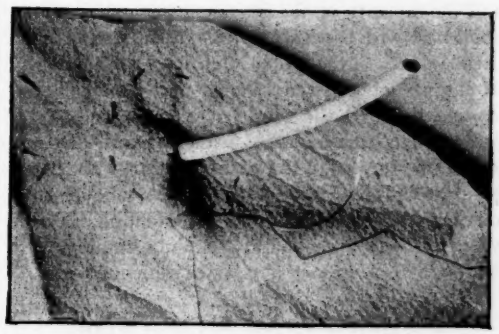


Method of Witzel.

tube; their free margins are stitched together by three or four Lembert sutures and several ordinary sutures. The canal thus made is a little over an inch long, and is left exposed at the bottom of the wound. A number of sutures will then fix the stomach to the abdominal opening.

Some experiments upon dogs have suggested to me a plan of procedure based on sound anatomic principles, and which, if not better than Witzel's method, is at least equally as good. In the dog the result has met every point that it was *a priori* intended to accomplish. The first steps of the procedure are the same as in Witzel's, an incision about three inches long being made along the left border of the ribs. The point for the introduction of the rubber tube is marked with the knife by a slight incision simply through the serous coat of the stomach.

FIG. 3.



Around this point as a center, and at a radial distance of a little over one inch, a purse-string suture is introduced by means of a straight needle and strong silk, and including only the serous and muscular coats of the stomach. Next the opening in the stomach for the rubber tube, about the thickness of a No. 15 American scale catheter, is made, and the tube is fastened by a silk or catgut suture. The purse-string suture is now drawn together, and there results a double sphincter, which will guard against any leakage from the stomach. With about six interrupted sutures I stitch the stomach to the parietal peritoneum, and both ends of the purse-string suture, which so far served to hold and steady the stomach, are now armed with needles and passed through the entire thickness of the abdominal wall on both sides of the wound and then tied in a loop. This arrangement will anchor the stomach firmly in position, and the suture can be removed in eight or ten days.

The dog upon which the experiment was made was fed immediately after the operation. On about the fifth day the tube in some way escaped into the stomach, but from the day of the operation up to the end of two weeks, when the dog was killed, not one drop of fluid escaped through the fistula. The latter was found patent post-mortem. The whole stomach was removed and filled repeatedly with water, and, as I am able to demonstrate to-day, it stands the test very well, not one drop of fluid escaping. (The fistula was slit open in the presence of some members of the Society, and showed the two sets of valves plainly.) In a case operated upon by Mikulicz

according to the method of Witzel, in which death took place six months afterward, the stomach, after removal from the abdominal cavity and being filled with water, did not stand the test so well, although fluid never escaped through the fistula during life.

A hint thrown out by Ewald might be well worth considering. In carcinomatous stricture of the esophagus he advises the making of a fistulous opening in the vicinity of the pylorus, so as to permit the introduction of food directly into the intestines by means of a rubber tube. His observations lead him to assume that in such cases the digestive power and the motility of the stomach are almost totally abolished, and that this viscus will only serve as an incubator for microbes, as microscopic examination of the contents of the stomach under such circumstances revealed the presence of pure cultures of putrefactive bacteria. He further advises the occasional washing out of the stomach through the fistula with a solution of boric acid, resorcin, salicylic acid, or similar agent, or the direct introduction of one of these through the mouth. Brandy swallowed in teaspoonful-doses may also act as a disinfectant.

CLINICAL MEMORANDA.

CELIOTOMY UNDER UNUSUAL CONDITIONS.

With a Report of Ten Cases.[1]

BY GEORGE ERETY SHOEMAKER, M.D.,
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I DESIRE to give some practical illustration of the problems that confront the abdominal surgeon and to present some cases of widely differing type, selected for purposes of illustration. All the cases reported recovered from operation. All are living except one, who lived a year and a half and died of facial erysipelas.

The first case represents some of the later developments of neglected pelvic inflammation and their final cure by operation.

CASE I. *Hydronephrosis from obliterated ureter; pyosalpinx and ovarian abscess surrounding the vermiform appendix; catheterization of ureter.*—E. L. P., aged thirty-five years, of good heredity, was married nine years, and had three children and one miscarriage. Her first labor, seven years ago, appears to have been followed by sepsis, since which she has had numerous attacks of pelvic inflammation, usually starting as severe pain in the right ovarian region, and centering around the umbilicus. These attacks have increased in severity and frequency during the past three years, resulting in practical invalidism. The last attack, having lasted about five weeks, brought her to the Methodist Hospital, where she presented a deplorable picture, emaciated, vomiting green, and at times bloody, bile-stained fluid; a large undermining bedsore over the sacrum; the tissues sloughing to the bone; irregular temperature to 101°; leaky skin and thready pulse. The abdomen was tympanitic and extremely tender, a semifluid mass filling the right half of the pelvis.

More than three weeks were consumed in the careful preparation for operation, by unloading the bowels, improving the stomach and securing a better appearance of the sloughing bedsore, which last was a representation of the general condition. Just here, I may say, that there is a golden time to operate, and careful observation alone will determine it in some of these desperate cases. It is not always as soon as the diagnosis is made.

I am convinced that it is wiser in acute peritonitis, when the case appears to have *already reached a standstill*, and when pus is not known to be present, to operate after the acute symptoms have subsided, if the condition of the patient warrants waiting. Also, in some profoundly septic conditions such as this, I am sure that I have saved life by waiting day by day, until by cleanliness and careful nursing a retentive stomach and a better tone have been obtained. In other words, it is safer to nurse an almost moribund patient a little if previous care has been wanting. This is not to be mistaken for an advocacy of delay after hemorrhage, or in progressive cases, such as acute suppurative appendicitis.

Operation, November 21, 1893. Everything in the pelvis was adherent by thoroughly organized adhesions to a mass which afterward proved to be the right tube and ovary riddled with abscesses and surrounded by hyperplastic tissue. The cecum was with difficulty freed down to the vermiform appendix, which passed directly into the inflammatory mass and was surrounded by it. The appendix was ligated off at two points, and came away afterward with the mass. When afterward dissected out it appeared healthy. The exudate appeared to pass behind the peritoneum at the outer border of the iliac muscle, and a tough prolongation was here ligated off. Thick, green, highly offensive pus, several ounces in quantity, escaped from the largest ovarian sac deep in the pelvis; but as a continuous stream of hot water was led to this point by the irrigation-nozzle, and kept constantly flowing out of the wound during the remainder of the operation, no harm was done. Thick pus does not readily mix with water, and may be carried along bodily by a heavy stream. The left tube and ovary were allowed to remain, as they appeared to contain no pus. The right kidney-region contained a large thin-walled cystic tumor, with a rounded lower end, flattened in alongside the spine, apparently a hydronephrosis. There was not a sign of inflammation about the mass, and no adhesion existed over it. It was decided not to open it then through the loin, as from its contiguity the bedsore would surely infect the wound. The fluid was considered not to be pus, because no adhesions of surrounding viscera overlaid the sac.

The patient made an excellent recovery from the operation, and looked better from the first. The temperature touched 100° on the third day for the only time. A glass drainage-tube was employed.

The question as to the proper disposition of the hydronephrosis still remained after recovery from the celiotomy. One month later the woman was free from pain, was going about the ward, had gained greatly in flesh, and had a good appetite, but the kidney-swelling was unchanged. She was now etherized, put in the Trendelenburg position, to allow the distention of the bladder with

[1] Read before the Philadelphia County Medical Society, April 11, 1894.

air, after the method of Dr. H. A. Kelly, and the orifices of the ureters exposed after dilatation of the urethra.

I demonstrated to my own satisfaction that no urine was coming through the right ureter, which had apparently been occluded by the unusually dense inflammatory infiltration that had previously existed. It was determined not to incise the sac, for if the ureter were obliterated a permanent fistula in the loin would result, while there was every probability of atrophy of the kidney occurring if nothing were done. Five months have now elapsed, the sac in the loin is with difficulty recognized, and the patient suffers no pain. Urinary examination was negative, and the quantity of urine, diminished for a few weeks after the celiotomy, became normal and remained so.

A letter received from the patient to-day expresses her great satisfaction over her restored health. She feels better than for ten years, and has gained twelve pounds over the highest weight of seven years. She was not weighed when emaciated by sepsis.

The relatively small abscess in the abdomen, limited by adhesions, and which can be opened and drained with safety to the patient, is a condition common enough.

It is very rare, however, to see recovery follow when the pus has been diffused from diaphragm to pubis and across the full width of the abdomen, as in the following case of obscure but probably tuberculous origin. As recovery followed, a tuberculous cause is made probable, for septic cases of this extent *never get well.*

CASE II. *Recovery from diffuse purulent peritonitis, probably tuberculous.*—Miss A. S., aged twenty-two years, was previously healthy. She was tall, active, and well-formed, and weighed 160 pounds. Her mother died of pulmonary tuberculosis. While menstruating the patient had an attack of so-called *la grippe*, and five days later thoroughly chilled herself by a cold bath, going to bed with a severe chill, followed by fever. Before rising the next morning there was sudden very severe general abdominal pain. Tympany and great general tenderness followed, with wiry pulse, dry tongue, and other signs of acute peritonitis. After a week of treatment, mainly by opium, at the hands of her physician, the woman was sent to the medical wards of the Methodist Hospital under the charge of Dr. J. H. Lloyd, who asked me to see her. It was now about two weeks since her illness began and one week since the pain started. The temperature was not irregular, and ranged from 101° to 102°. The eyes were abnormally bright; the cheeks flushed, the mind very clear; the abdomen universally tender and much distended. No tumor was discoverable. There were no signs of extra-uterine pregnancy. The uterus was small and moderately fixed, the vaginal fornices somewhat resistant, as though loose clot occupied the peritoneal cavity. Rectal examination showed a general fulness behind the uterus, but nothing suggesting a sac or tumor. At this time there was doubtful dulness in the flanks, which could not be confirmed later.

Pain and temperature improved slightly for two weeks, but the woman lost flesh. At the end of that time, four weeks after the onset, fluid could for the first time be positively demonstrated lying high up on the left side. The vaginal vault was now hard, and nothing could be determined from below. The fluid rapidly accumulated during the following week, distending the left side of the abdomen to the ribs; the pulse, temperature, and general appearance of the patient suggested the presence of pus, and she was now placed entirely in my charge. Operation six weeks after the onset of the disease revealed the following remarkable condition: The entire peritoneal cavity was lined by smooth, purplish, easily bleeding false membrane, and contained four pints of yellow, thin pus, with several ounces of pultaceous, yellow masses of purulent lymph resembling omelet in appearance. These masses were easily broken up, but ran out of the wound in irregular lumps many of which would have filled a tablespoon.

No intestines were to be seen; they were completely collapsed and occupied the hollows on either side of the spine in the upper abdomen and the region just over the insertion of the mesentery below, being completely covered by the single smooth sheet of false membrane. The hand was passed into the abdomen and the whole abdomen explored from the diaphragm to the bottom of Douglas' sac for granular surfaces of tuberculosis or for thickening or enlargement, to indicate the origin of the disease, but without result. The kidneys could not be separately outlined, being covered by collapsed intestine, but inasmuch as everything in the abdomen hugged the spine and posterior wall very closely, any enlargement would have been detected.

The region of the appendix yielded no light, though carefully explored. The ovaries, tubes, and uterus were free behind and easily outlined, as they lay plastered forward against the base of the bladder. The hand could be passed to the bottom of Douglas' sac and over the sacral surfaces. The slightest manipulation caused oozing of the surfaces of the peritoneum, which appeared greatly thickened, but contained no millet-seed nodules and showed no adhesions. A thorough toilet of the cavity was made, many gallons of hot, filtered, and boiled water being passed through, the fingers carefully dislodging lymph. Glass drainage was used, followed by a gradually shortened rubber tube, for five weeks. The discharge from the tube, while it contained some pus, was never offensive. The wound, being carefully washed with hydrogen dioxid frequently, healed rapidly. In the third week, after carefully sterilizing the glass drainage-tube to prevent inoculation with superficial discharges, eight ounces of warm Thiersch's solution were on each of two occasions allowed to flow into the abdomen under eighteen inches of hydrostatic pressure. This failed to dislodge any pus and returned quite clear, so the washing was not repeated. The patient improved very rapidly; put on many pounds of flesh; is without pain or tenderness, and the site of the drainage-tube is closed. Seven months after the operation she reported herself as well.

Through the courtesy of Dr. Riesman cultures were made for tubercle-bacilli from the pus obtained, but without result. A careful examination of a piece of the thickened parietal peritoneum removed at the edge of the abdominal wound also failed to show tubercle-bacilli. I am assured, however, by a pathologist that this evidence is not conclusive of the non-tuberculous character of the process. My own impression is that the origin was tuberculous, possibly in a kidney; that the fluid originally was ascitic and that it became purulent

shortly before the operation. Negatively, I know of no case of universal purulent peritonitis of long standing in which the patient has recovered if the source of the pus was due to ordinary infection, as from the bacterium coli commune or the staphylococcus pyogenes aureus. The relation to the kidney is suggested by the fact that during convalescence pus without casts has at times appeared in the patient's urine, and by the fact that she has stated that she long has given up the wearing of corsets because pressure over the region of the right kidney in the flank caused occasional discomfort. At all events, she now looks and feels well.

The following case is the only one in my experience in which perfectly normal tubes and ovaries have been removed except for fibroid tumor. The object was the cure of well-marked epilepsy of decided menstrual type. The patient remains well physically, but the improvement in the epilepsy was only temporary, and now, three years later, her condition is even worse. The case deserves to go on record as a failure, and serves still further to confirm the opinion now held by most neurologists, that in true epilepsy no permanent benefit is to be derived from an artificial menopause if no disease of the reproductive organs exists. This opinion was held at the time of operation; but three years' previous observation, and a record of every attack for one and a half years, showed the truth of the patient's statement that the epileptic attacks grouped themselves about her periods, had begun at puberty, and had been absent for two or three months at a time when her periods chanced to be absent. She was also confirmed in self-abuse, was not to be trusted with unscrupulous men, and her mind was becoming dull. She had for three years been confined in a home for incurables. The operation was the earnest desire of herself and friends, but was refused until a long trial of medical treatment proved of no avail in improving her condition.

These statements are made because I feel that operations upon the normal genitalia call for very distinct justification in each case. The history was as follows:

CASE III. *Epilepsy; oöphorectomy; no improvement after three years.*—E. B., aged thirty-two years, was an epileptic from puberty at thirteen years. Her periods recurred every four weeks, and lasted from four to six days; the quantity was normal; pain was moderate. Usually from four to ten convulsions occurred just before or during the flow, with *none in the intervals.* An aura was felt from the umbilicus to the head; the tongue was bitten; the shoulder was dislocated several times; total unconsciousness occurred, followed by sleep or stupor. During sixteen years there were at least three occasions when the menses were absent two or three months, when no convulsions occurred during the same interval. Indiscretions in diet would bring on attacks, but almost never except near a period. Examination revealed no pelvic disease; the labia minora were unusually large. Though not considered very hopeful, after long treatment by other measures and consultation with several physicians, total removal of the adnexa was performed in June, 1891. Aseptic recovery took place. No menses have been observed since. For a year the convulsions were lessened in severity and frequency; but now, after three years, the woman is rather worse if anything. Her mind has continued to degenerate, and she has prolonged periods of hebetude. The effect on the self-abuse has not been learned.

CASE IV. *Cirrhosis of left ovary; extreme pain; oöphorectomy; great improvement, lasting three years.*—E. T., aged fifty-two years, unmarried, was blind from childhood. A malignant tumor was removed from the right breast and axilla eight years previously by another surgeon. For four years prior to the celiotomy she had intense paroxysms of pain in the left ovarian region, almost daily, causing her to roll about the bed and moan or scream for hours. As other drugs failed, the morphin-habit was gradually acquired, and at the time of the operation her allowance was three grains daily. The pain was genuine and was much influenced by the approach of storms. After being under treatment with other measures for one year, celiotomy was performed. The left ovary was found to be exceedingly small, of the size of two white beans and very hard, though not calcified. It was removed, and there was uncomplicated recovery from the operation. No morphin was given from that date. The pain was very greatly relieved, and though the patient's surroundings remained the same, there was much improvement in weight and appearance. Now, three years later, attacks of pain are at times absent for months and are of mild character. The patient has never failed at every interview to express earnestly her gratitude for the operation and the relief it brought. She was seen well four days ago.

This case is unusual in that the operation was performed for *pain.* This is a deceptive indication, and very rarely by itself justifies abdominal operation.

Next follows an instance in which a pyosalpinx would partially empty itself at times, but for seventeen years made the patient an invalid; complete cure was brought about by operation, lasting four years to date.

CASE V. *Pyosalpinx.*—J. D., aged thirty years, menstruated just once at twelve years, when she immediately became illegitimately pregnant and acquired gonorrhea. She bore a child that is still living, but had an extremely difficult labor, complicated by pelvic inflammation and mammary abscess. She has never had good health since, *i. e.*, for seventeen years. There is always pain in the left side, and also attacks of bladder-derangement, with abdominal pain and soreness, which confine her to bed for weeks. Six years ago she was in bed nine weeks with pelvic inflammation, when there was a sudden gush of ill-smelling discharge. She is now just able to be out of bed, but at times severe paroxysms of pain in the abdomen make it impossible to straighten the body for hours. When operated upon she had been in bed about three months with symptoms of pelvic peritonitis. Examination showed a tense, very tender fluid mass to the left of the uterus and bulging into the rectum. A few days later there was a discharge of several ounces of horribly offensive fluid from the vagina, aptly described by the patient as like "old rotten egg that is red." Two days later the menses appeared. This discharge gave much relief, but as her years of invalidism had continued after previous discharges, celiotomy was performed, and with the greatest difficulty two tubal and ovarian masses, riddled with pus-pockets, were completely removed. Flushing and glass-drainage were employed; and excellent recovery followed. For this

woman life began anew. For the first time in years she was without pain. There was rapid increase in weight, and for four years she has worked hard six days of every week, never ceasing to be grateful to the operator.

CASE VI. *Retroversion with descent; torn sphincter; anterior fixation of uterus.*—Mrs. B. (sent by Dr. M. K. Elmer, of Bridgeton, N. J.), aged twenty-nine years, had three children. Her sphincter was torn in labor two years ago, and she had no control of her bowels. Two attempts at repair at good hands in one of our large college-hospitals have greatly discouraged the patient by their failure. Complete success was obtained by a curved incision in front of the anus from one end of the torn sphincter to the other. The ends of the muscle were picked up by a strong catgut suture in a curved needle, and were brought together in front of the anus. The catgut was buried, and reinforcing wormgut sutures were *introduced afterward*. The result was permanent, and absolute control remains.

She had also adherent retroversion with salpingo-ovaritis, considered to be of a grade sufficient to render useless further attempts at cure without celiotomy. The uterus was stitched to the abdominal wall with silk. Twelve months later she reports great benefit from this operation, and freedom from pain, though obliged to do housework and nursing.

CASE VII.—The interest in this case lies in the opportunity that it afforded to examine from within the abdomen an inguinal ring upon which an operation had been done for hernia ten years before. Dr. John Ashhurst had operated for strangulation. Though I am unable to learn that any special effort was made to obtain a radical cure, the hernia never recurred. Aside from the pelvic condition of an adherent, prolapsed, sacculated tube containing inspissated and hardened inflammatory material, for which I performed celiotomy, the patient complained of pain at the site of the old rupture when standing. The inguinal canal was found to be closed at the internal ring, but a diverticulum of peritoneum not more than an eighth of an inch in depth passed behind the internal pillar of the ring, and without doubt served to nip a portion of intruding bowel. The resulting pain was afterward largely controlled by a truss.

At the time of the celiotomy the woman presented the usual picture of chronic invalidism, with mingled neurotic and objective symptoms of old pelvic disease. Several months of previous treatment in the hands of her physician, Dr. M. K. Elmer, and in my own at the Methodist Hospital, yielded little result. The diseased tube and ovary on the left side were finally removed. Buried silkworm-gut sutures were introduced into the abdominal wound. She made an aseptic recovery, and reports, nine months later, great improvement in general health and strength, and no pain except at the site of the old inguinal hernia. She has been married eleven years, but is sterile.

CASE VIII. *Tuberculosis of peritoneum; prolonged drainage without cure of disease.*—This patient came under my care, at the Presbyterian Hospital, for enormous ascites in August, 1892. She was forty-eight years old, unmarried, and had a tuberculous family history, the mother and sister presenting pulmonary tuberculosis, and nine brothers and sisters dying in infancy. Her illness began four months previously as a painless swelling of the abdomen, which had rapidly increased until the limit of distention had apparently been reached. She was emaciated, with a small pulse of 150, the stomach rejecting all but the smallest quantities of peptonized liquids. Vaginal examination without ether being impossible, rectal examination disclosed no apparent tumor, but a fixed uterus and small roughened masses on both sides. The extreme distention called for immediate relief. Celiotomy showed a condition of the visceral peritoneum which was considered at the time to be tuberculous, though the parietal peritoneum accessible for removal and examination was smooth and showed simply increased vascularity. The small intestine generally was hardened, stiffened, and contracted, its loops slightly adherent, except in the left half of the pelvis, where they were matted about a small, resonant enlargement which appeared like a portion of the descending colon. There was no tumor at this time. The adhesions were rough, from a vast number of minute granules. The peritoneum over the small intestines in the left side of the pelvis was red and covered with minute elevations like granulation-tissue. The ovaries and tubes were buried in rough, cheesy adhesions.

The desperate condition of the patient precluded any attempt to separate and clear up the small mass of intestines, and drainage alone was given a chance at cure. Two months and a half later the fluid had again accumulated, and a second celiotomy was done with the object of removing any nidus of disease in the left side, and possibly resecting the colon. On removing the fluid, however, large new-growths were found choking the pelvis and absolutely sessile upon the anterior abdominal wall four inches above the pubis. A nodule, as large as a small egg, was seated on the wall above the umbilicus, and many were scattered through the omentum and mesentery. The operation was evidently hopeless, and the abdomen was again closed, and drainage provided for. The incision gave rise to no difficulty, and the patient continued fairly comfortable for about twelve months, being occasionally relieved of the ascites by aspiration, the quantity obtained varying from eight to fourteen pints. Emaciation was extreme, but there was no pain as from malignant disease. The woman died of facial erysipelas, seventeen months after the first operation and fourteen months after the second. The autopsy was performed by Dr. H. W. Cattell, who considered the large masses, adherent to the uterus, tubes, ovaries, and intestines, together with a cyst unknown origin containing several pints of fluid, to be tuberculous. The specimen was shown by a resident physician, Dr. Swan, at the Pathological Society, and unfortunately lost, though referred to a special committee for examination.

The prolonged drainage of tuberculous disease of the abdomen is only curative when the disease does not involve the parenchyma of organs and is confined to the peritoneum. One such case under my own observation is apparently entirely well five and a half years after drainage by celiotomy.[1]

Radical operative treatment is demanded in some cases because the hernial sac is largely buried in the superficial fat, and a belt or truss has no chance to

[1] Trans. Philadelphia County Medical Society, 1894.

reach the orifice of exit through the fascia and muscles. In the following case, in a laboring-woman, mechanical retention of the hernia was impossible.

CASE IX. *Umbilical hernia in the obese.*—Mrs. C. was subject to attacks of pain and nausea from an umbilical hernia of spontaneous origin. The tumor was largely made up of irreducible omentum, and was contained in a very irregular sac, with numerous prolongations into the abdominal fat. The patient was very short and exceedingly obese. The adherent omentum was tied off and removed. The sac was dissected out completely, and the deep fascia and muscles were united by buried silkworm-gut sutures, four to the inch, and these were allowed to remain permanently. The skin and superficial fat were separately sutured. The woman made an uncomplicated operation-recovery, the wound being aseptic. Six months later the hernia had not recurred.

CASE X. *Adhesion of small intestine following celiotomy.*—M. D., twenty-six years, had both tubes and ovaries removed by a well-known operator one year before coming under observation. She had since been in different hospitals and in a home for convalescents, complaining of abdominal pain. This pain frequently caused nausea and vomiting, always preceded a stool, and was excited by the movement of intestinal gas. It was frequently referred to the umbilicus, and was considered to be of intestinal origin. Celiotomy in the Trendelenburg position disclosed two points of adhesion of the small intestine, one near the old incision, the other to an ovarian and tubal stump. The latter was freed with the scissors, and the bowel-wall stitched with silk, aseptic recovery following, though there was some vomiting late in the convalescence. One year later the patient was seen and declared herself cured. She had had no more pain, and had been working instead of leading the life of a hospital-inmate as before. Post-operative adhesions are best prevented by clean surgery and by the avoidance of constipation afterward.

RESECTION OF THE ANKLE-JOINT, WITH REMOVAL OF THE OS CALCIS, FOR ACUTE OSTEOMYELITIS.

BY H. L. JENCKES, M.D.,
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CASES of acute suppurative periostitis, or osteomyelitis are of so frequent occurrence as to attract no special attention. While in many cases the etiology is obscure, in some it is undoubtedly tuberculous. Clinicians have not been slow in recognizing the gravity of the affection, although it is comparatively recent that inflammation in bone has been treated like suppurative inflammations in the softer tissues, *i. e.*, by free incision.

The diagnosis of inflammation in bone is not always easy, some forms pursuing a slow course, and, giving rise to but little pain, are thus not diagnosticated until the cold abscesses which they cause appear.

As the result of osteomyelitis, the tibia and femur are seen to increase in size and to attain an enormous thickness. Such was the condition of a tibia from which I recently chiselled away part of the bone and removed sequestra.

The case of osteomyelitis considered in this report occurred in a child about seven years of age. The family at first thought him suffering from rheumatism of the ankle-joint, and for this supposed condition medicine was obtained, which afforded little if any relief.

When I first saw the case the joint was greatly swollen and inflamed. Pus had formed, and would soon have escaped spontaneously. Recognizing the serious nature of the disease a free incision was made into the affected parts, and nearly a teaspoonful of pus evacuated. Directions to have the ankle frequently washed with mild antiseptics were given, but were only imperfectly carried out.

At the end of a week the family was led to believe the child improving because he was suffering less pain, but upon examining the joint, at the end of another week, it was found to be in a far worse condition than when first seen. Several sinuses had now opened, and through these denuded bone could be felt. A sinus on the dorsum of the foot led down to the astragalus, from which a small piece of bone had exfoliated. This was removed. Several openings under the outer malleolus led to the calcaneum, from which the periosteum had separated.

As resection of the joint and removal of the dead bone offered the only prospect of saving the foot, this was done. The disease being confined chiefly to the calcaneo-astragaloid articulation, and involving the calcaneum mainly, I decided to remove that bone. For this purpose the patient was anesthetized with ether. An incision was made through the sinuses on the outer aspect of the foot, and carried from the calcaneo-cuboid articulation backward through the tendo Achillis. Through this incision the bone was grasped and removed. The sinuses leading down to the astragalus were now enlarged, and that bone was scraped and cleansed. The wounded surfaces were irrigated and dusted with iodoform. The subsequent course was favorable throughout. The wound healed firmly by granulations, and a useful foot was the result.

In separating the attachments of the calcaneum the operator should avoid wounding the posterior tibial artery. The vessel is here situated midway between the inner malleolus and the tuberosity of the os calcis.

MEDICAL PROGRESS.

Operative Treatment of Old Dislocations of the Hip.—HARRIS (*Annals of Surgery*, vol. xx, No. 3, p. 319) has reported the case of a ranchman, thirty-three years old, who, while threshing, was struck on the left hip by an iron pulley weighing about 350 pounds. The injury was so severe that the man was unable to use the leg, but he supposed that the injury was only a severe sprain, and that recovery would speedily ensue spontaneously. After walking around on crutches for about a month without improvement, he consulted a physician, who diagnosticated a dorsal dislocation of the left hip. The man was anesthetized and reduction attempted, but without success. Four days later a second attempt at reduction was made, and this was likewise unsuccessful. The man remained in bed for two days, and then got up and went around on crutches again. Two weeks

later a third attempt at reduction was made, and again without success. The man was unable to use the leg at all, and could only get about with the aid of crutches. The leg presented the usual characteristics of dorsal dislocation: slight flexion, adduction, internal rotation, and shortening, with the top of the trochanter above Nélaton's line. The whole limb was somewhat atrophied, and both active and passive motion were much limited and painful. It was now determined to cut down upon the joint. Accordingly, nearly four months after the injury, an incision about 14 cm. long was made in front of the great trochanter, between the tensor vaginæ femoris and the gluteus medius, leading directly down to the acetabulum and anterior surface of the head and neck of the femur. The acetabulum was found filled with a tough, adherent, connective-tissue proliferation from the anterior portion of the capsular ligament, which in falling over the cavity completely closed it. On cutting through the capsular ligament the head of the bone was found resting on the posterior and superior edge of the acetabulum in a shallow depression, the lining of which had a smooth, cartilaginous feel. Immediately in front of the head and helping to fill the cotyloid cavity was a piece of bone, curved in shape, about 3 cm. long by 1 cm. deep and 0.5 cm. wide, which had been detached from the posterior wall of the acetabulum, and which may have been an obstacle to early reduction. The head of the bone was still covered with smooth cartilage, while the neck had acquired new firm adhesion to all of the surrounding parts, thus producing a new capsular ligament. A restoration of the ligamentum teres could not be demonstrated, but a small portion of it was present in the depression in the head of the bone when this was turned out of its new joint. The adhesions of the neck were divided, and all the muscular attachments to the great trochanter and shaft as far down as the lesser trochanter were separated subperiosteally from the bone, thus liberating the entire upper end of the femur. By means of the gouge and sharp spoon the acetabulum was freed of capsular ligament and new connective-tissue formation. The cartilage lining the bottom of the cavity was found to be still smooth. The head of the bone could not, however, be made to enter the acetabulum, which seemed too small. The cavity was consequently enlarged somewhat posteriorly with the gouge and mallet, after which by considerable exertion and manipulation, the head was finally returned to its place and the leg assumed its normal position. The wound was partly stitched up, and the remainder packed with iodoform-gauze. The limb was placed in the extended position, slightly abducted, and externally rotated, a plaster cast put on and extension applied. The operation occupied two hours, and the patient suffered considerable shock, although the loss of blood was not large. Reaction took place promptly, and the progress of the case was favorable from the onset. There was considerable serous discharge from the wound during the first few days, necessitating rather frequent renewals of the dressings. In three weeks the wound was closed, but in another week there was a rise in temperature, with pain over the great trochanter. Upon opening one corner of the wound a small quantity of sero-pus was evacuated from a small cavity superficially situated over the trochanter and not communicating with the joint. This was drained by a counter-opening posteriorly, and it gave no further trouble. The extension was continued for three weeks. After its removal the leg swelled a good deal throughout its entire length. This swelling was relieved by tight bandaging, so that in about two weeks more, or six weeks from the time of the operation, the man was permitted to get up on crutches. In three months he could walk with a cane without pain in the hip. There was active motion in all directions.

As a result of this experience and from a study of the literature the conclusions are reached (1) that owing to the danger of fracturing the neck of the femur, of laceration of the great vessels of the thigh, of shock, and death, the application of great force to reduce old dislocations of the hip should be discontinued in favor of arthrotomy; (2) that subcutaneous operations in cases of old dislocation are without benefit; (3) that osteotomy below the trochanter can scarcely come into consideration at this day; (4) that resection is only to be thought of when reduction by arthrotomy fails; and (5) that the operation which has given the best results is free arthrotomy, with reduction after the method pursued in the case here reported.

Successful Suture of Perforated Gastric Ulcer.—BENNETT (*Lancet*, No. 3697, p. 21) has reported the case of a woman, forty-one years old, who while walking up stairs felt a sudden, violent pain in the region of the umbilicus, became faint and fell to the ground. Collapse developed, the temperature becoming subnormal and the pulse small. The abdomen was slightly distended. Above the level of the umbilicus there was acute pain and tenderness; the normal hepatic dulness was replaced by tympanitic resonance. Abdominal respiration was restricted, but not entirely absent. There was no general peritonitis. The expression of the face was typically "abdominal." There was neither vomiting nor nausea. For two years the patient had suffered with constant flatulence, much increased by food. There had never been acute pain, vomiting, nausea, or hematemesis. For two weeks there had been a little "nagging" pain around the umbilicus, which was greatly intensified at a spot an inch above and rather to the right of the median line after taking solid food. On the whole, however, the woman had considered herself in fair health until the occurrence that brought her under observation. She came of a tuberculous family, and on three occasions had had inflammation of the lungs. The signs of perforation of the stomach appearing sufficiently distinct, immediate operation was determined upon. The abdomen was opened by an incision in the median line, extending upward for about three inches from a point just above the umbilicus. A gush of opaque fluid followed the opening of the peritoneal cavity. The exposed surface of the liver was clothed with recent lymph, and the parts about the pyloric region of the stomach were somewhat matted together by fresh adhesions. Careful exploration of the anterior aspect of the stomach having failed to detect any lesion, the abdominal wound was enlarged for another inch and the stomach drawn out and turned upward. There was then found on its posterior surface, about two and one-half inches from the pylorus, a perforation equal in size

to a No. 6 English catheter, surrounded by an area of gristly induration about two inches in diameter, which, diminishing at the edges, finally faded away into the surrounding healthy parts. The extreme right margin of this induration nearly touched the pylorus itself. The small perforation was just made water-tight by a suture including the whole thickness of the walls of the stomach except the mucous edge. The peritoneum on each side of the perforation, greatly thickened and stiff was then brought across by six Lembert sutures, so as to completely cover in the occluded perforation. Another series of sutures, to act as a stay, to reduce the tension on those already introduced, was placed at each end in the long axis of the stomach, extending well into healthy peritoneum. These sutures at the hepatic end passed on to the pylorus. The parts having been gently wiped over with a soft sponge, were returned to the abdomen; the abdominal wound was brought together with silkworm-gut and dressed in the ordinary way. No irrigation was practised and no drainage-tube was used. For four days rectal feeding was practised, plain water being allowed to be taken by the mouth *ad libitum* in small quantities at a time. Two weeks after the operation solid food was being taken in the usual way with relish and comfort. The abdominal sutures were removed on the seventh day. Seven weeks after the operation the patient was dismissed, feeling well and gaining flesh. There was no pain of any kind; the old symptoms of flatulence had entirely gone and showed no sign of recurrence, although the woman had been taking ordinary hospital-food for nearly a week.

Traumatic Rupture of the Jejunum without External Lesion.—WHITE (*British Medical Journal*, No. 1742, p. 1077) has reported the case of a miner, seventeen years old, who had been crushed in the pit and presented a collapsed condition, the pulse at the wrist being almost imperceptible. He lay with the knees drawn up and complained of severe abdominal pain. The abdomen was rigid and board-like, but presented no bruise. The tenderness and rigidity were most marked in the left umbilical and lumbar regions. There was an absence of abdominal respiration and no dulness could be detected. Collapse increased and vomiting of gastric and bilious matters set in. A day after the accident the man passed a normal stool and immediately thereafter died. Upon post-mortem examination no evidence whatever of external injury was discoverable. On opening the abdomen the intestines were found covered with a fibrinous exudation, on removal of which the vessels were seen to be much injected. Just to the left of the spine the small intestine was ruptured at about the middle of the jejunum. The rupture was transverse and involved the whole of the circumference of the bowel with the exception of about one-eighth of an inch at the attachment of the mesentery, which latter was slightly bruised. The bowel itself was only crushed for a distance of about a quarter of an inch on each side of the rent, the edges of which were thickened and edematous. Only about a dram of blood escaped, but the contents of the intestine were extravasated. The other organs were healthy, with the exception of some enlargement of the mesenteric glands and some old pleuritic adhesions. It was learned that the lad had been crushed between a wagon and a prop in such a way that a broad, flat surface was applied dorsally and a moderately sharp ledge anteriorly. The rupture probably occurred from compression of a moderately full coil of intestine between the ledge and the spine.

Post-pneumonic Thyroiditis due to Pneumonia-cocci.—LION and BENSAUDE (*Bull. de la Soc. Anat. de Paris*, June, 1894, p. 434) have reported the case of a man, forty-nine years old, previously healthy and without personal or hereditary predisposition, in whom developed a frank attack of pneumonia of rather protracted duration, defervescence taking place slowly, and not being complete before the seventeenth day of the disease. During the week following, the appetite returned and the general condition improved, but on three occasions the temperature reached 100.4°. A day later the patient complained of pain in the neck, and it was observed that there was also swelling and tenderness. The temperature was now found to be 102.9°. Treatment with inunctions of mercurial and belladonna ointment was for a time employed, but in the course of a few days an abscess formed in the left lobe of the thyroid gland, which, after the demonstration by exploratory puncture of the presence of pus containing pneumonia-cocci in pure culture, it became necessary to evacuate.

THERAPEUTIC NOTES.

Cactus Grandiflorus.—SHARP (*The Practitioner*, No. 315, vol. liii, No. 3, p. 160) thus summarizes the salient points of an essay upon *Cactus grandiflorus*:

The literature of *Cactus grandiflorus* is comparatively extensive, but vague, too many properties being ascribed to the drug, and upon too slender evidence, there being no authoritative evidence of a pharmacologic or carefully carried out therapeutic kind. The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as can be made out after extensive trials, neither of these bodies could be obtained. The most important agents appear to be a series of resins. The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These cause contraction of the bloodvessels of a frog, but this is not in the nature of a digitalis-contraction, but is believed to depend on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with digitalis in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart-muscle at all. Therapeutically, *Cactus grandiflorus* cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and, at most, all one can say is that it has some slight diuretic action.

Resorcin for Whooping-cough.—BEDELL (*Indian Medical Record*, vol. vii, No. 3, p. 76) reports four cases of whooping-cough successfully treated by topical applications, twice daily, of a solution of resorcin, one dram to the pint.

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THE PHYSICIAN'S VACATION.

THERE are a number of reasons why the summer vacation must be planned long in advance, and just as many why we should keep well in mind the benefits to be derived from it when properly carried out.

More than in any other profession or calling, the physician, in duty to himself and to his patient, is bound to take a season of rest at least once a year. Like the old-time housewife, his work is never done. If patients do not demand his attention for from sixteen to twenty hours of the twenty-four, he, as none other, is compelled to seize every possible moment for the study of the progress of his science. The result is that in the year he gives, as a rule, far more hours of labor to his work than do other members of the community. The argument for a rest, therefore, is based upon physical, mental, and moral grounds. One reason that we fear will not have quite the general acceptance it deserves is the help given to the younger colleague, who temporarily takes charge of the practice of the elder.

It is growing more common for city physicians to take a summer vacation; but it is not so generally felt that the physician of the village and country should do the same. Yet none can need it more, and there are in his case especial reasons for the practice. It has long been recognized that life in the country is likely to lead to monotony and unprogressiveness. The friction of minds in the cities, and mutual ambitions and rivalries, not to say jealousies, keep mental and professional energy at a high pitch. Country physicians might, therefore, with much advantage, utilize the season of rest and change to form acquaintances and to learn by word of mouth of the work and worth of their distant colleagues. It would be a double benefit if we could have short summer post-graduate special courses of medical study at mountain or seaside resorts, such as the Summer School at Dartmouth, and the Biological School at Wood's Hall, Mass.

Medical congresses should be held at such places, and if, as is too common, they were not rushed through in such stupid and silly haste, they might become the means of greater good to greater numbers than is the case at present. It seems to be a growing feeling that the sooner a program can be got through with the better, and we have lately attended meetings where members were wheedled and bullied into reading papers by title or in abstract, and in which discussion was shut off, as if the object of the meeting was to open and adjourn like a Jack-in-the-box machine. It is undoubtedly true that, as at present carried on, the good of medical meetings is far more social than scientific. It is, perhaps, true that most medical congresses will continue to result chiefly in that sort of good; but it is certainly not necessary that the distinctively medical side be utterly extinguished in favor of the social.

While awaiting the summer medical school, where should the physician spend his resting season, how long should he stay away, and what should he do?

It goes without saying, that each will answer these questions differently for himself. We only urge that, in view of the modern ease of intercommunication, everyone go far from home—as far, we were about to say, as possible—and remain away as long as he can. If foreign travel is possible (and it is generally more feasible than one at first thinks), by all odds undertake it. Perhaps a little travel, like a little knowledge, may be "a dangerous thing," and one may return to his old habits without the proper lessons learned or the improper conceit unlearned. But it cannot usually fail to broaden the mind somewhat and give us a better opinion of others, to go and visit them in their homes and "see how they do it." Ease of travel has stopped

the formation of languages, dialects, and of patois; it also acts the same way medically. But if not to other countries, at least to other States! Make the change as decided and as distinctive as possible, and, as a rule, it is better to go to a place and stay there—unless, indeed, one travels afoot! Much railway travel in visiting many places is inadvisable.

A physician hardly needs to be advised against seeking the great "resorts" and fashionable hotels. He will naturally seek the company of the hills, the woods, or the seashore, rather than that of people. The advantages of this plan are evident. Nothing so effectually breaks up the monotony and weariness of our laborious life as a temporary leaving of society, the ills and worries of ill people, and a quiet communion with Nature—a peaceful "thinking it all over." Singleness and exclusiveness of duty or work is likely to act injuriously upon the mind. Indeed, every physician should have some absolutely non-medical "hobby." Interest, partial or interrupted, in something wholly different from that pursued as professional is a great preserver of mental and moral hygiene. The vacation-time is, of course, especially adapted to such pursuits. Many, and certainly no fault is to be found with such, will prefer hunting, camp-life, a bicycle-tour, or a tramp over mountain-ranges. Even then the peculiar interests of his profession will not wholly escape him as he mournfully thinks what hygienic evils deforestation and pollution of streams are preparing for those who come after us.

But the world is getting pretty well filled, and society is not entirely to be escaped. In hotels the physician will get his melancholy lesson of how far we are from medical civilization by observing the certainty with which quacks and patent medicines and cure-alls, private and public, are recommended by otherwise sensible people. In some New England village he will, perhaps, find the best minister lauding and working with the drunk-curers, permitting them the use of his church, and signing testimonials of nostrums. He may also hear the confession of the best physician that not to consult with the wretchedest quacks would soon ruin his little and precarious practice. The people still believe in medical magic and miracle-mongering, and that ignorance is a better preparation for the medical man than education.

But, wherever one goes, he will return to his round of duties the better for the rest, and determined to repeat the lesson each year. The mind will have been refreshed and quickened, life will been seen in new lights and by new insights, and the doctor will be better able to meet the demands made upon him by his profession and by his patients. One will do more and better professional work in eleven or ten months, with one or two months of rest, than in twelve without a vacation.

"THE ATTACK ON THE BUSINESS INTERESTS OF THE"—NEW YORK POLICE.

CERTAIN straight-laced, half-bore, narrow-gauge, humpbacked, Pharisaical, and otherwise generally-back-number Miss Nancies, in the city of New York, actuated by malice and envy, and in the hope of damaging the "business interests" of the guardians of the peace of that city, have, as our readers are aware, unwarrantably "attacked the business-methods" of the blue-coated gentlemen in question, and have latterly gone so far in their career of reckless wickedness as actually to prove the truth of their charges. These fanatical New York shriekers should be severely rebuked. It is quite evident—indeed "the logic of circumstances" declares—that their only object is to advance the rival interests of the *New York Herald*. As indisputable proof of this we refer to numerous editorial articles in the *Herald* approving the course of DR. PARKHURST, and refusing to credit the repeated affirmations of the Police Commissioners that he was an impracticable crank.

As a matter of "abstract ethics," it may be wrong to levy blackmail upon gamblers, crooks, and the keepers of disreputable houses; and perhaps a strict stickler for obsolete codes might censure the taking of bribes from "green-goods" operators in return for aid and comfort given to these estimable and enterprising manufacturers in the pursuit of their business. Upon this phase of the question we carefully abstain from expressing any opinion. But, as is well known, abstract ethics should not be applied to practical questions. To do so is to be illiberal, and to show that one does not appreciate the inevitable distinctions between profession and practice, between fine words and coarse actions.

It is true, moreover, that the business enterprises referred to are against the law, and that the police being sworn to obey and uphold the law, their promotion of and participation in illegal practices might seem to the half-bore Pharisees to savor of a betrayal of trust. But such a view is very narrow

and superficial. The laws in question are quite ancient, and we live in a modern era. At the time these statutes were passed there was no Elevated railroad, no Broadway cable, no Bowery tough, no Brooklyn bridge, no boodle alderman, no Riverside drive, no Pantata; and Tammany was in its infancy. The changes incident to the progress of the last —— years, the marvellous advances in arts and sciences, the widespread diffusion of education, and the general increase of political activity render the great metropolis of 1894, with its two million inhabitants, a very different place from the sleepy village of PETER STUYVESANT, or even the large city of the days before the war. It would therefore be manifestly absurd to require of the helmeted and club-wielding legions of the present Commissioners that scrupulous obedience to rule by which CHIEF CONSTABLE HAYS made his stovepipe-hatted force a terror to the law-breaker, a bulwark to the citizen; or to insist upon a literal observance of laws and statutes passed with regard only to the welfare of the peaceful and the law-abiding. Because the Legislature may have failed in its duty and neglected or refused to remove from the statute-book of the Empire State the illiberal legislation of a past age, the Police Captains should not therefore be hindered in their endeavors to promote the era of fraternity and good-will, without regard to artificial class-distinctions.

If one citizen chooses to be a merchant, another to be a banker, and another to be a confidence-man, why is not the last named as much entitled to police protection as the other two? This is a land of freedom and equal rights! And if the confidence-man chooses to pay the police officer for favors rendered, whose affair is it but theirs? And why should not the merchant and the banker, the fruit-peddler and the unfortunate woman, likewise contribute their proper proportion of extra-judicial taxes for the support of the finest police force in the world? The captains and inspectors and wardmen must do their duty regardless alike of the failures of the Legislature and the imperfections of the statute, and if the restrictive law is not repealed, what course is open to them except to violate it?

But there is still another consideration even more potent than those just urged. As an esteemed contemporary has conclusively proved[1]—questions of right and wrong are not so simple as the unsophisticated may imagine. It all depends upon the point of view. Morality is one thing and "business" is another. Morality might condemn the assistance rendered to the green-goods dealers; but business—never! Well, hardly ever. That is, it might be very wrong if it were not well paid for. This fact of payment, as our readers will observe, our contemporary properly insists upon as the crucial distinction. What might be a question for the ethical student, so long as no remuneration passes, becomes purely a matter of business, so soon as pecuniary considerations are involved. Now, the police have not been charged with helping the verdant-stuff merchants *for nothing*. On the contrary, it is admitted by the narrow-gauge Miss Nancies that the officers concerned receive a sum certainly no less than the celebrated fund of *eight thousand dollars per annum* which our contemporary has on a previous occasion referred to. To ask them to forego this revenue for a mere matter of "abstract ethics" would certainly be very unbusinesslike.

If the humpbacked reformers in New York really wish to suppress the green-goods traffic they must adopt a different plan. They must not try to prevent the dealers' circulars and telegrams from being handled by the Post-office, or the places of meeting from being guarded against the Federal authorities by the local police. It is evident that the people want these things or the circulars wouldn't be issued or the meeting-places maintained. If the demand were cut off the trade would cease to be profitable, and would therefore be discontinued. Now the way to cut off the demand is *to educate* the people. As is well-known, honesty and education are synonyms; witness the Keystone Bank, the Panama Canal, etc., etc. Educate the people, and in a million years or so the green-goods traffic will die a natural death. Meanwhile we should severely frown upon the miserable attempt, solely undertaken for the benefit of the *New York Herald*, to injure the business interests of the New York police.

[1] "The right or wrong of many things depends upon the standpoint from which they are viewed. It makes quite a difference whether one views Chicago from the top of the Auditorium or from the Chicago River. Advertisements present a different aspect to one who looks upon them from a purely business standpoint than they do to the ethical student."

"It is not good surgery to put a plaster over a pus-discharging sore, even though this were effective in preventing the pus from being seen by the patient or his friends. Good surgery cuts down, finds the origin of the pus, and removes the dead bone, granulation-tissue, tumor, etc., which produces the pus. So with the whole list of objectionable advertisements in medical journals. Let us go to their sources and remove these. Create such a professional life as will render these advertisements unprofitable, and the disease will be cured. All else is simply an unscientific method of operation."

EDITORIAL COMMENTS.

The Priority Executioner.—The history of science is filled with records of the discovery of some truth by two or more minds independently of each other. Thus, to take two illustrations known of all, Wallace and Darwin, each without the knowledge of the other's work, discovered the biologic law that now passes under the name of Darwinism, and Helmholtz and Mayer enunciated the doctrine of the conservation of force in the same way. Wise men delight to honor the memory of Wallace and of Helmholtz for the *originality* of the discoveries, and give only a little more honor to the men who first put them on record. Good men also delight in the calm dignity of the *later* discoverer who gladly joined in the award of *priority* to the *earlier* rival. How fatuous would have been the addleheadedness of the later discoverer if he had quarrelled with the verdict and ceaselessly vaunted his own honor!

But there is yet another possibility—the much-protesting third person who himself has discovered nothing, and who devotes his energies to croaking and poohpoohing and preaching that no other fellow did discover anything. The burden of his lamentation is that there is nothing new under the sun, and least of all is this particular thing new. Moreover, if it were new it is not true. "Go to; let us show up this fraud," is his ever-renewed text. This is the priority-executioner, a species of literary protestant who adds much to the pleasure of the readers of medical and other journals. One wonders, in reading his writings, why, if neither new nor true, the matter is considered by him of such importance as to arouse his criticism, and if to nobody else is due the honor, why he is so anxious that this nobody shall have it. One's amused interest is also heightened by noting that the worthless new thing had been used by the critic before and ever since the silly would-be-discoverer was in his swaddling-clothes. One more than suspects the motive of the priority-killer is not quite purely impersonal or genuinely scientific. Lameness of logic and over-much protestation seem to lead to the conclusion. But when the silly would-be-discoverer does not care a blue bean whether he made his "discovery" first or not first, caring only if there be anything in it of use to the world, then are the exorcisms of the paralyzer most vain and his gesticulations painfully ludicrous.

The Abuse of the Reprint.—It is a courteous and commendable custom for an author who has written an article of real value to send reprints thereof to libraries for reference, to his friends for preservation, and to those pursuing the same line of investigation, who might not otherwise become so soon acquainted with his researches. When, however, the reprint is used merely to advertise the fact that the writer is peculiarly skilful in a certain specialty it is less commendable; and when it is used to advertise Messrs. Enterprise and Paywell's Panacea, or some similar substance, it becomes anything but commendable. These thoughts are suggested by the receipt of a pamphlet, reprinted from a journal published in a neighboring city, and bearing the title "Functional ———," by X. Y. Z., M.D., Professor of ——— in the ———, etc., which publication although ostensibly coming to us from the author, is quite evidently circuated as an advertisement by, and at the expense of, the firm whose "trade-mark" product is therein recommended (no doubt, honestly) as a sovereign remedy for the affection in question. Apart from all questions of propriety, men who permit their names thus to be misused are very shortsighted. Their advice, however unjustly, comes to be looked upon with suspicion, as not wholly scientific and disinterested; and their reputation becomes upon a par with that of the "advance-agents" of theatrical notorieties—an honorable reputation when one does not pretend to be other than an advance-agent. The advertising-reprint and the reading-notice are twin growths of the same poisonous root, and should be utterly condemned by thinking, self-respecting physicians.

What is the Duty of the State and of Medicine as regards the Congenital Idiot, the Hopelessly Insane, etc., is a question that presses more and more upon our attention. Some two thousand years ago Plato praised the physician who should refuse to lengthen their lives. In a recent paper read before the University Extension Classes at Oxford, England, our esteemed colleague, Dr. Billings, has also asked why we should expend time and money to prolong these lives. Dr. Billings hazards no answer to the question, but its mere asking implies that economically at least there is but one answer. But the economic aspect is by no means the only one. Leaving aside sentiment and religion, we may consider it simply scientifically. The idiot and the insane may be considered as scientific problems. However impossible the solution just now, the presence of these problems, the existence of the beings themselves, keeps before the mind the everlasting interrogation. We would only put the problem out of sight, not answer it, by killing the problem-asker. The inquiry into the etiology would be stopped at once by the *petitio principii* of the premise that the cause of idiocy is indiscoverable. Killing the questioner would be a convenient but somewhat unsatisfactory way of settling a good many bothersome questions. Every effect must have its adequate cause, and the discovery of causes is the duty and work of the scientist, whether physical or medical.

The Greatest Engineering Undertaking of To-day is at once an economic and a sanitary crime. Millions of dollars are being expended to make the Mississippi River a huge open sewer, and to add the filth of a great city to the combined filth of a hundred lesser cities. As each adds its share the water for the use of those further down-stream is more dangerously contaminated and polluted. Economically alone, this waste of nitrogenous compounds is appalling; but, hygienically, what an outrage, not only against future generations, but against the present generation! Vast sums of money are expended to waste a valuable product that could be utilized on the almost limitless prairies about Chicago, and by the waste the health of millions and of a nation is not only imperilled, but certainly harmed. Nothing could speak more eloquently of the need of a strong governmental organization which should legislate upon and control all such undertakings.

The Water-supply of Philadelphia.—As has been frequently shown in these columns, there is but one right way to improve the water-supply of Philadelphia, namely, the plan first advocated by Dr. Henry Leffmann—the erection and maintenance of an adequate filtration-plant. The source is a secondary matter. If filtration shall fail, or if the Delaware and Schuylkill should run dry, the building of aqueducts may be considered. Until such a contingency arises there should be but one question before the municipal authorities, namely, the best and quickest way of building the necessary filtration-basins. We suggest the appointment of a commission of experts selected with the coöperation of the College of Physicians (as the senior medical body of the Commonwealth) to act in conjunction with the Department of Public Works.

American Medical Teaching.—The physicians of America owe an acknowledgment to Prof. Dr. Max Schueller, of Berlin, for his graceful but candid defence of their attainments and teaching methods against the censure of a superficial but not wilfully unjust observer (*Der Aerztliche Praktiker*, August 9, 1894, p. 878). Prof. Schueller points out the vast extent of American territory, the scattered population, the varying conditions, social and climatic, in order to show that no generalization can properly include all American physicians and schools; and, while admitting the defects that American critics themselves animadvert upon, pays a just tribute to the advanced standing of our best colleges and our representative teachers and practising physicians.

REVIEWS.

A MANUAL OF THERAPEUTICS. By A. A. STEVENS, A.M., M.D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania; Demonstrator of Pathology in the Woman's Medical College, Philadelphia; Physician to St. Mary's Hospital and to the Southeastern Dispensary; Pathologist to St. Agnes' Hospital. Philadelphia: W. B. Saunders, 1894.

WE regret that we can give this book only faint praise. The author has accomplished his purpose, and perhaps should not be judged by a more exacting standard. But in therapeutics "a little knowledge is a dangerous thing." It is precisely the student who needs an "introduction to the subject" for whom the best and most expository works should be written. This is not such an introduction, but a condensation which can be useful only to those who have least occasion for it.

THE BRISTOL MEDICAL SCHOOL. (Reprinted with additions from the *Bristol Medico-Chirurgical Journal*, 1892, and presented to the members of the British Medical Association visiting Bristol at their Annual Meeting, 1894.) Bristol: J. W. Arrowsmith.

THIS little brochure is chiefly constituted of a record of "The Early History of the Bristol Medical School," from its organization in 1832 up to the formal opening of a new wing of University College in 1892, by Sir Andrew Clark, prepared by Mr. Augustin Prichard, Consulting Surgeon to the Bristol Royal Infirmary. It is neatly illustrated by sketches and photographs, and contains brief biographic notes of the early members of the faculty.

CORRESPONDENCE.

COW-POX (?).

To the Editor of THE MEDICAL NEWS,

SIR: We are just now having an epidemic of a skin-disease that I take to be cow-pox. The initial lesion in every case so far has been on the hands, and with a single exception it has only appeared among milkers. This case occurred in a young miner who handles his mother's cow, though he never milks. The cows in the town have small blebs on their udders, and one or two horses that have been kept in the same stalls with cattle present very suspicious-looking sores.

The first lesion noticed in my cases is a dark-red spot, which in the course of a week becomes purplish, then enlarges to the size of a pea. The skin puffs up until it looks like an inflamed wart; then it slowly fills with lymph and breaks down, leaving a small sore the size of a silver three-cent piece—often smaller than this. About the eighteenth or twentieth day after the appearance of the initial lesion a rash breaks out, looking like urticaria, and covers the hands and face; in one case it covered the chest and thighs, and in another the hands and feet only. The original sore is never painful and never itches, but the rash is both painful and itching; in fact, the patients have to cover with cloths the parts the seat of the rash, to prevent scratching off the skin.

The rash does not become sore, but slowly disappears, leaving no traces of skin-inflammation.

As for treatment, at first not finding any account of this disease in any of my books, I used the usual treatment of skin-inflammations, but knowing the power of menthol to allay itching, I tried it in the following combination, and found it successful, fully controlling the itching—in fact, giving complete relief:

℞.—Menthol. . . . . ℥j.
Acid. carbolic. . . . . ℥iss.
Olei olivæ . . . . q. s. f℥iv.—M.
Sig.—Apply to the rash when it itches.

This application shortens the duration of the rash. My first cases lasted about two weeks; since I have been using this combination the usual time is about five days.

Yours very truly,

FRANCIS W. HARRELL,
Surgeon to Seattle Coal and Iron Co.

GILMAN, WASH., August 23, 1894.

THE INTRA-UTERINE APPLICATION OF HYDROGEN DIOXID.

To the Editor of THE MEDICAL NEWS,

SIR: I trust that you will extend a word of caution in regard to the intra-uterine application of hydrogen dioxid after abortion, etc. This matter is again called to my mind after reading the article by Dr. W. D. Jones, page 242 of THE MEDICAL NEWS, of September 1, 1894. The Doctor there states that he "irrigated the uterus with hydrogen dioxid," after having evacuated it in a case of uncontrollable vomiting of pregnancy. How much this may have had to do with the fatal issue I do not

presume to say; but there are undoubtedly two great dangers incurred by such a use of hydrogen dioxid, *i. e.*, the entrance of evolved gas (along with septic fluids if present) into open uterine sinuses, and the entrance into the peritoneal cavity by the Fallopian tubes of the same materials. It is difficult to conceive of a more certain method of producing gaseous venous embolism than by the procedure under consideration, not to speak of the additional dangers of forcing septic material into open bloodvessels and the peritoneal cavity.

Respectfully yours,

A. J. COMSTOCK.

VENTURA, CAL.

NEWS ITEMS.

The Southern Surgical and Gynecological Association will hold its seventh annual session at Charleston, November 13, 14, and 15. The meeting promises to be the most successful in the history of the organization. Papers will be presented by the leading surgeons and gynecologists of the South. The medical profession is cordially invited to attend. Dr. Cornelius Kollock, of Cheraw, S. C., is President, and Dr. W. E. B. Davis, of Birmingham, Ala., Secretary.

Dr. Beaven Rake, Government Surgeon and Director of the Leper Hospital at Trinidad, and one of the greatest authorities on leprosy, died on August 24th, from some form of fever, at the age of thirty-six years.

Dr. Jaromir Mundy, a distinguished humanitarian, died at Vienna on August 23d, at the age of seventy-four years.

BOOKS AND PAMPHLETS RECEIVED.

Society of the Lying-in Hospital of the City of New York. Medical Report, 1893. New York: Martin B. Brown, Printer and Stationer, 1894.

On Guaiacol Applied Externally as an Antipyretic. By Julius Friedenwald, A.B., M.D., and H. H. Hayden, M.D. Reprinted from the New York Medical Journal, 1894.

The Diagnostic Value of Ehrlich's Diazo-Reaction. By Charles L. Greene, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Subvolution. A New Pterygium Operation. By Boerne Bettman, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Ripening of Immature Cataracts by Direct Trituration. By Boerne Bettman, M.D. Reprinted from the Journal of the American Medical Association, 1893.

The Relation Between the Eyes and Disease of the Female Genital Organs. By Boerne Bettman, M.D. Reprinted from the American Journal of Obstetrics, 1893.

Ueber den Einfluss des Ichthyols auf den Stoffwechsel. Von Dr. Phil. O. Helmers. Berlin: Druck von Georg Reimer, 1894.

Ueber Ichthyolsuppositorien bei der Behandlung der Prostatitis. Von Dr. A. Freudenberg, in Berlin. Sonder-Abdruck aus dem Centralblatt für klinische Medicin, 1893, No. 26.

A contribution to the Arrangement and Functions of the Cells of the Cervical Spinal Cord, to which is appended a Note on Central Changes secondary to Long-continued Disuse of an Extremity. By Joseph Collins, M.D. Reprinted from the New York Medical Journal, 1894.

Hemorrhagic Typhoid Fever; Treatment, and a Review of Seventeen Cases. By Roland G. Curtin, M.D. Reprinted from the Philadelphia Hospital Reports, 1892.

Clinical Teaching and Clinical Teachers in the Philadelphia Hospital. By Roland G. Curtin, M.D. Reprinted from the Philadelphia Hospital Reports, 1892.

Some Observations on Influenzal Neuritis. By Edward W. Watson, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

A Brief Study of Some Ancient Epidemics and their Relation to Influenza: With Notes on the Epidemic of 1893-94, and Recent Methods of Treatment. By Roland G. Curtin, M.D., and Edward W. Watson, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

The Action of Influenza Poison on the Heart, and a Study of Influenzal Angina Pectoris. By Roland G. Curtin, M.D., and Edward W. Watson, M.D. Reprinted from the International Medical Magazine, 1893.

Clinical Manual for the Study of Diseases of the Throat. By James Walker Downie, M.B. New York: Macmillan & Co., 1894.

U. S. Department of Agriculture. Division of Microscopy. Food Products. I. Twelve Edible Mushrooms of the United States, with Directions for their Identification and their Preparation as Food. By Thomas Taylor, M.D. Reprinted by Authority of the Secretary of Agriculture, with an Appendix.

Essentials of Practice of Pharmacy. Arranged in the Form of Questions and Answers. Prepared Especially for Pharmaceutical Students. (Second edition, revised.) By Lucius E. Sayre, Ph.G. Philadelphia: W. B. Saunders & Co., 1894.

Myxedema, Acquired and Congenital, and the Use of the Thyroid Extract. By George W. Crary, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

The Spectacle Treatment of Hypermetropia. By Boerne Bettman, M.D. Reprinted from the North American Practitioner.

So-called Spontaneous Combustion, or Increased Combustibility of the Human Body, with Experiments. By Adrian Hava, M.D. Reprinted from the New Orleans Medical Journal, 1894.

Reports. Friends' Asylum for the Insane. Philadelphia, 1894.

Société des Ambulances Urbaines de Bordeaux. Comptes-rendus des Deux Premières Années de Fonctionnement (1890-91-92). Bordeaux: Imprimerie G. Gounouilhou, 1893.

Opinions of the Press on "A Bill to Establish a Bureau of Public Health within the Department of the Interior of the United States." Prepared by the National Quarantine Committee of the New York Academy of Medicine. New York: John J. O'Brien & Son, 1894.

A Contribution to the Study of the Physiological Actions of Spartein. By David Cerna, M.D., Ph.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

Surgical Shock. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

Procidentia Uteri. By Charles P. Noble, M.D. Pamphlet. Read before the Obstetrical Society of Philadelphia, January 4, 1894.

Profuse Menstruation. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

The Perfect Needle-Holder. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

A New Uterine Curretting Forceps. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

Acute Puerperal Cellulitis and True Pelvic Abscess. By Charles P. Noble, M.D. Reprinted from the American Journal of Obstetrics and Diseases of Women and Children, 1894.

A New Method of Examining the Kidney, Especially for Stone. By Charles P. Noble, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

A Post-Graduate Lecture on Intra-Cranial Tumors. By James Taylor, M.A., M.D. Edin., M.R.C.P. Lond. Reprinted from the Lancet, 1894.

Pathological Notes on Two Pedunculated Tumors. By Ludvig Hektoen, M.D. Reprinted from the Journal of Pathology and Bacteriology, 1893.

A Specimen of Four Healed, Ascending, Ileal Invaginations, Symmetrical and Equidistant. By Ludvig Hektoen, M.D. Reprinted from the International Medical Magazine, 1893.

Unusual Case of Gunshot Wound of the Brain. By J. E. Tefft, M.D. Reprinted from the Medical Record, 1894.